

Perfected

The AMERICAN RIFLEMAN



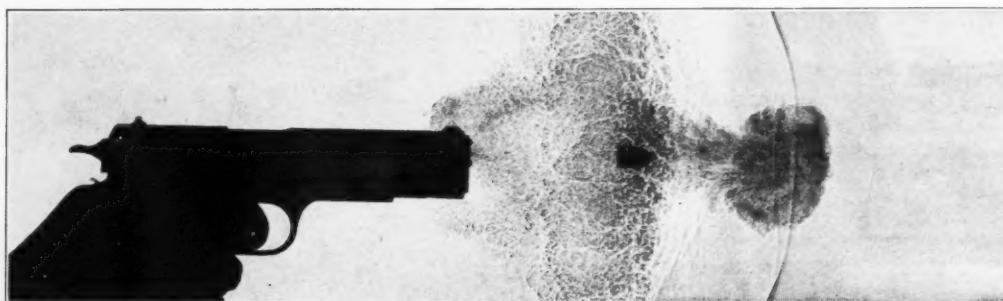
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JULY, 1928

25 CENTS



This spark photograph shows a Colt .45-caliber automatic pistol just after the cartridge has been fired and before the bullet emerges from the muzzle. The sound wave is clearly visible.



This spark photograph, taken in one-millionth of a second, shows the bullet a little more than three (3) inches out from the muzzle and moving at a speed of approximately 800 feet per second. It should be noted that there is no upward tilting of the muzzle.

Performance of Peters Cartridges Successfully Recorded by Photography

PETERS AMMUNITION has long been recognized for its amazing uniformity, its extreme accuracy and its universal dependability proven by results on the range and at the traps. The quality of the component parts, the infinite precision with which every step in the production of cartridge or shell is coordinated and then checked and counter-checked have been demonstrated in the remarkable scores that have been made by users of Peters Metallics and of Peters Shot Shells.

Now for the first time, however, can the actual performance of ammunition be seen by photographs taken by Capt. Quayle of the Peters Physical Laboratory. Now for the first time has the eye of the camera been able to record the bullet in actual flight. So fast does this marvelous spark photograph operate that it is able to show just what happens *after* the trigger is pulled and *before* the bullet emerges from the muzzle, as in the first of the three photographs shown above.



This spark photograph shows the pistol just as the empty cartridge case is being ejected. The impact of the slide on the receiver has caused the muzzle to tilt upward. Some of the powder gas is still coming from the mouth of the empty shell.

When you use Peters Ammunition you know exactly what it will do in performance. It's up to you! If you hold right you're sure to score, for Peters Ammunition is checked by the most complete set of scientific instruments in existence.

THE PETERS CARTRIDGE CO.
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PETERS
AMMUNITION

The Call of the Woods

JUDGE GIFFORD, that dignified citizen of Tylersville, had had a hard winter and he was tired. Even for such a small town, there had been an unusual number of killings, robberies, etc., not to mention the ever-increasing number of divorces. And the Judge's soul yearned for a rest. At his wife's request, he dutifully examined the beautifully colored and worded advertisements of seaside and mountain resorts. But, somehow, they failed to appeal to the Judge. You see, he had a picture in the back of his mind of a little cabin up in the woods near Tylersville where he had been wont to hide as a boy and camp out. He could shut his eyes and smell the bacon sizzling over the open fire; see the wild things of the forest scuttling down to the stream to drink.

So he packed his family off to one of the fashionable seaside places and made for the cabin in the woods, totting his trusty old gun and his brand-new pistol, with plenty of "cartridges." He took no company but his bird dog. * * *

The Judge came back to town reluctantly, but feeling much refreshed and more kindly disposed toward his fellow man. Indeed, the first nigger brought before him for stealing chickens, after his return, got off with a good talking-to—an unprecedented happening in Judge Gifford's court.

AS AESOP SAID, 2600 years ago: A dog and a gun make an emperor of any man and a man of any emperor.

This is the season for pistol shooting! Buy the best equipment!

AMMUNITION

.38-caliber long Colt, mid-range, smokeless, \$36.00 per case of 2 M, \$20.00 per M.
.45-caliber, Model 1911 automatic, \$45.00 per case of 2 M, \$25.00 per M (manufactured 1918).
.45-caliber, Model 1909 revolver, \$70.00 per case of 2 M, \$37.50 per M.

TARGETS

20-yard Standard American, per M	\$6.00	50-yard Standard American, per 100	\$2.50
50-foot Standard American, per M	6.00	20-yard International, per M	6.00
50-foot International, per M	6.00	Special Police Practice, per M	10.00
25-yard Standard American, per 100	2.50	50-meter International, each .....	.15

CLEANING RODS AND ACCESSORIES

.22-caliber pistol rods, with jag	\$1.60
.38-caliber pistol rods, with plug	1.15
.45-caliber pistol rods, with plug	1.20
Flexifold .45 pistol cleaner	1.00

Brushes and patches for all of them!

DON'T FORGET THAT both the Colt and Smith & Wesson companies offer a 10 per cent discount on their pistols and revolvers to N. R. A. members.



Colt, Camp Perry Special,
.22 Single Shot, \$36.70
10-inch barrel, Partridge Sights.



Silver miniature Marksmanship decoration, 50 cents. Also obtainable in Sharpshooter and Expert Rifleman.

BULL'S-EYE PISTOLS, \$2.25 each. A barrel of fun, combined with real accuracy.
Works on a rubber-band arrangement, uses No. 6 chilled shot.

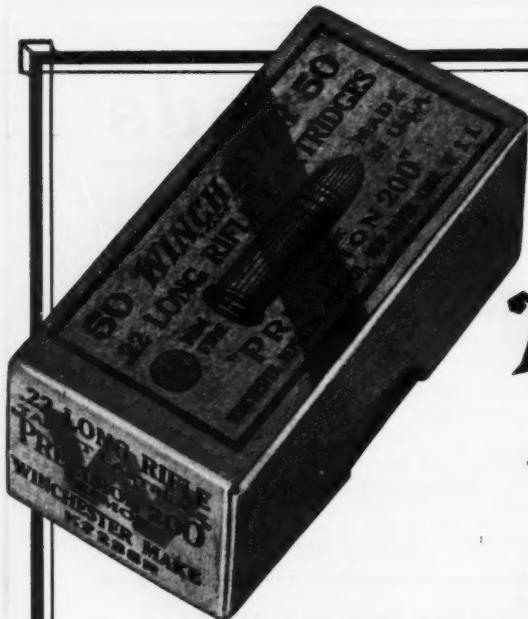
SPECIAL !!!

N. R. A. Official 50-yard Small-Bore Targets, per 1,000	\$6.00
N. R. A. Official 200-yard Small-Bore Targets, per 100	2.50

N. R. A. SERVICE COMPANY, Inc.

BARR BUILDING

WASHINGTON, D. C.



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TRADE MARK

• PRECISION •
CARTRIDGES

*Add the Touch of Perfection to the
Winchester 52*

Every shooter knows the fame of the Winchester 52 as the dominant small-bore target rifle of America. Here are the Winchester Cartridges designed and manufactured to enable this great rifle to give you its best. They are the product of years of study and ballistic research to make the cartridge that would be worthy of this great rifle and to complete the ideal small-bore target combination,—Winchester Model 52 and Precision Cartridges.

Super accurate for any .22 Long Rifle target rifle. Supreme for the Winchester Model 52.

Precision 75—Made expressly for the indoor ranges.

Precision 200—For the outdoor small-bore target ranges.

.22 Long Rifle Rim-fire only.

UNIFORM.

ACCURATE.

DEPENDABLE.

Shoot Winchester ammunition in Winchester guns—they are made for each other.

WINCHESTER REPEATING ARMS COMPANY
NEW HAVEN, CONN., U. S. A.

The "22" Revolver
 that makes $1\frac{1}{2}$ " groups
 at 50 Yards!

FOR 16 YEARS the S & W 22/32 has held its title of "the finest 22 caliber revolver".

Today—due to the new high speed non-rusting ammunition for which it is now especially bored and rifled—it not only is the most accurate and finest balanced 22—but it is as clean to handle and shoot as a single shot pistol.

Here is a revolver that while so accurate that it holds the "ANY REVOLVER" record is equally suitable for the camper, fisherman or for small game hunting, and without equal for the fascinating sport of shooting at moving targets!

Fitted with a "Call" gold bead Patridge front sight it is equally perfect for regular target or woods shooting, and is offered members of the N. R. A. for \$31.35.

Take up revolver shooting with this finest Twenty-Two if you want to enjoy the most fascinating sport of all.

Our Descriptive Booklet R-15 may interest you—it will be sent free upon request.

SMITH & WESSON, INC.

SPRINGFIELD, MASS., U. S. A.



There is a Lubaloy Cartridge (LUBRICATING ALLOY) for YOUR Rifle and Pistol

NO MATTER what type, caliber or make of arm you are using, you can have the advantages of WESTERN Lubaloy bullets.

All WESTERN center-fire and rim-fire rifle and pistol cartridges are now available with Lubaloy bullets.

Lubaloy means LUBRICATING ALLOY. The effect of these newer type bullets is to lubricate and prevent leading of the bore. Accuracy is increased. The life of the barrel is prolonged. The bore remains almost as bright as new after thousands of rounds of shooting. Cleaning of the gun is seldom necessary and is made much easier.

Give WESTERN Lubaloy cartridges a trial, if you are not already using them. They are the choice of many of the country's expert rifle and pistol shots. . . . Of many of the principal big-game expeditions to India and Africa.

Important Rifle and Pistol Matches are Being Won with WESTERN Lubaloy Cartridges

MISSOURI STATE RIFLE AND PISTOL CHAMPIONSHIP, Columbia, Mo., May 18-19. WESTERN Lubaloy MARKSMAN cartridges used in the small-bore matches and by the University of Missouri Pistol Teams in the free-pistol events. St. Louis

Police Teams and the Glendale Club used WESTERN .38 S. & W. Special with Lubaloy bullets. WESTERN won as follows:

Small-Bore Championship—200 yards

1st—W. C. Winston, University of Mo... 187
5th—Capt. J. J. Coghlan, Univ. of Mo... 182

Individual Girls' Match—50 and 100 yards

1st—Ruth Garst, University of Mo... 364
2nd—Frances Fagin, University of Mo... 361
3rd—Violet Eaton, University of Mo... 360

Junior Dewar Championship Match—50 and 100 yards

1st—C. A. Reiser, Kemper Military School... 381
2nd—A. M. Zimmerman, Kemper Military School... 377
3rd—W. T. Love, University of Mo... 377

Senior Dewar Individual Match—50 and 100 yards

2nd—W. T. Love, University of Mo... 383
3rd—W. C. Winston, University of Mo... 382

Dewar Team Match (Teams of four)—50 and 100 yards

1st—University of Missouri 1,498
2nd—Kemper Military School 1,495
3rd—University of Mo. Girls' Team... 1,441

Tyre Individual Match (Pistol)—15 and 25 yards

1st—W. L. Sapper, University of Mo... 199
2nd—G. L. Noland, University of Mo... 195
3rd—J. E. Money, University of Mo... 195

Free Pistol Individual Championship—50 yards

1st—W. L. Sapper, University of Mo... 174
2nd—J. E. Money, University of Mo... 173
3rd—Nick Bosch (Lt.), St. Louis Police Department 167
4th—G. L. Noland, University of Mo... 161
5th—F. Matkin, St. Louis Police Dept... 160

Free-Pistol Team Championship—50 yards

1st—University of Missouri 821
2nd—St. Louis Police Team No. 1 797
3rd—St. Louis Police Team No. 2 786
4th—Kansas City Police Team 717

Open Team Match (Any Pistol)

1st—Univ. of Mo... 1,317
2nd—St. Louis Police Team No. 1 .. 1,275

3rd—St. Louis Police Team
No. 2 1,202
4th—Glendale Club,
St. Louis .. 1,141

Police Team Match (Any Pistol)

1st—St. Louis Police Team
No. 1 1,316
2nd—Kansas City Police Team 1,251
3rd—St. Louis Police Team
No. 2 1,224

Police Individual Match

1st—O. J. Yanick,
St. Louis Police Department .. 256
2nd—B. J.
Watkins,
Kansas City Police Dept.,
..... 256

3rd—Nick
Bosch (Lt.),
St. Louis Police Dept.,
..... 251

Long Island Team Championship, Sea Cliff, N. Y., April 28-29—WESTERN Lubaloy MARKSMAN cartridges used by teams which placed as follows (range 50 and 100 yards):

1st—Sea Cliff Rifle Club.
2nd—Woodmere Rifle Club.

3rd—Baldwin Rifle Club.
5th—Westbury Rifle Club.
7th—Bellmore Rifle Club.

Individual Scores.—J. A. Nixon, Sea Cliff, 485 x 500; Harold Steele, Baldwin, 483; C. W. Avery, Sea Cliff, 481; E. C. Applegate, Baldwin, 480; Jack Steiner, Woodmere, 476; Frank Wheeler, Hicksville, 476.

WESTERN CARTRIDGE COMPANY

725 Hunter Avenue
East Alton, Ill.

Branch Offices: Hoboken, N. J.
San Francisco, Cal.

Western

Lubaloy
(LUBRICATING ALLOY)

Cartridges



The AMERICAN RIFLEMAN

Vol. LXXVI

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EDITORIAL

A VICTORY

WITH the signing of the National Match Bill by President Coolidge on May 28 there was brought to a successful close the fight which the National Rifle Association has been making for the past five months to bring about a guarantee that in future the National Matches will be held annually. The riflemen of America may henceforth look forward to the National Matches each year with as much confidence as they anticipate the activities of the tax collector.

The N. R. A. has contended that the wording of the National Defense Act clearly indicated that it was the intent of Congress that the National Matches be held regularly every year. The General Staff, however, did not accept the wording as mandatory; and upon several occasions the War Department failed to provide for the holding of the Matches.

A number of conferences having been held with the War Department representatives in an effort to induce them to carry out the evident intent of Congress, but without success, General Reckord finally applied to Congress, where he conferred with Mr. James, of Michigan, and Mr. Speaks, of Ohio, upon the subject. After one of these conferences General Reckord determined to prepare a bill in mandatory language and present the same to Congress, in order that Congress might definitely make known their intent with respect to the annual holding of the National Matches, and remove the whole matter from the province of the War Department. This bill, carrying the mandatory provision for the holding of the National Matches regularly each year, has now become law; the position taken by the National Rifle Association has been definitely and fully justified; and the opinions of the War Department have been removed from the picture. With the signing of the bill by President Coolidge the N. R. A. won a distinct victory, and a powerful and far-reaching impetus was given to organized rifle shooting throughout the land.

CO-OPERATION THAT COUNTS

MAJ. GEN. HANSON E. ELY, commanding the Second Corps Area, has received the thanks of the National Rifle Association for the kind of co-operation that is worth while to the civilian riflemen of his Corps Area. General Ely has sent a circular letter to the Commanding Officers of all Posts having rifle-range facilities in the Second Corps Area, and to all Regular Army officers on duty with the Organized Reserves, saying:

"It is desired that you assist in every way possible, without expense to the Government, in disseminating information in connection with the formation and preparation of civilian teams in your locality, and render every assistance when called upon by interested civilians."

In a letter to Headquarters of the N. R. A. under date of May 26, General Ely says:

"I hope the clubs will feel free to make use of these facilities and that results obtained will be most beneficial. I assure you that every assistance possible will be given by post commanders."

General Ely commands the corps area in which civilians have the greatest difficulty in finding proper range facilities. This includes the densely populated States of New York, New Jersey, Delaware and Pennsylvania. There are thousands of civilians in this area who wish to shoot but who are unable to do so because of lack of proper range facilities. General Ely's action should do a great deal for the promotion of civilian rifle shooting and for the development of well-trained civilian teams from this area for the National Matches of 1928. This attitude of co-operation on the part of the War Department and of General Ely is sincerely appreciated by the N. R. A., and should be met by the civilian riflemen with equally sincere co-operation in seeing to it that the ranges when used are properly policed, and any assistance which may be rendered in various areas to the Regular Army personnel, either from the standpoint of small-arms marksmanship or socially, should be extended.

The AMERICAN RIFLEMAN

Vol. LXXVI

JULY, 1928

No. 7

A Keeper of the Records

By Al Blanco

EVERY so often we hear of a remarkable performance on the small-bore rifle range, which is not unusual in this day of keen competition and high development of rifles and ammunition. When we hear of such performances we usually ask whether a new record has been established, and if so, who held the previous record. In my own experience of many years on the rifle range I can truthfully say that seldom is there any definite information available on the subject, and that one is forced to depend upon one's memory for information.

In his excellent book on "Small-Bore Rifle Shooting" Captain Crossman has attempted, after a fashion, to list some of the outstanding achievements in the small-bore shooting world, but it is obvious that where records are made and remade overnight, so to speak, it is not possible to keep these up to date in any book of the type of the one referred to. There ought to be "a keeper of the records," and the proper keeper is none other than the N. R. A.

Only the other day I received a letter from Capt. Thurman Randle, of Texas, that genial and excellent shot who performed so nobly last year at Camp Perry and, incidentally, made for himself a host of Eastern friends. In that letter Captain Randle called my attention to a statement in a recent advertisement wherein Mr. Henry Wright, of Pasadena, Calif., was given credit for being high man on the winning West Team over the Palma Course in the East and West Match at Camp Perry last year. Captain Randle stated that according to the records he was high man on the West Team, with a score of 225 and 38 V's, while Mr. Wright was second with 225 and 31 V's. Now there appears to be no question but that Captain Randle is correct and that he is justly entitled to the honor of having been high man on the West Team at Perry last year. That is not the main point, however, although this gives me the opportunity to give due credit to Captain Randle for a remarkable exhibition of marksmanship with the small-bore rifle.

The point is, I learn for the first time that Captain Randle had bettered John Mission's score at Sea Girt in 1925, when the redoubtable John had scored the possible and 28 V's—at least that is what Captain Randle tells me. It therefore appears that the man who holds the record over the Palma Course with the small-bore rifle is none other than Capt. Thurman Randle, of Fort Worth, Tex., and I am sure that this will be real information to a great many shooters, as it was to me.

It seems to me, and I make the suggestion quite boldly, that proper steps should be taken immediately by the National Rifle Association, through the influence of THE AMERICAN RIFLEMAN, to obtain an accurate list of all small-bore records, both indoors and outdoors, at all distances, and get this proposition up to date and satisfactorily

EDITOR'S NOTE.—The N. R. A. has, for the past year and a half, been endeavoring to compile a "record book." The work has been slow and tedious because of the necessity of searching old copies of magazines, checking up on personal claims, etc. The Record Book recognizes only shoulder-to-shoulder competitions conducted by, or under the sanction of, the N. R. A. At the present time it is as nearly up to date as it has been possible to bring it, in view of the scattered records available. The work is being continued and a list of the present records recognized by the N. R. A. will be published in an early issue of THE AMERICAN RIFLEMAN.

adjusted for all time. It can be done and should be done, and every shooter who reads this will surely lend his help to bring this about. Let us make a start right now by listing Capt. Thurman Randle as the holder of the Palma Course record with a possible of 225 and 38 V's.

The next one of which I have knowledge is that magnificent record made by L. J. Miller, of the Frankford Arsenal Rifle Club, Philadelphia, Pa., at Sea Girt last July, when he scored 398 over the Dewar Course. This, in my judgment, should be recognized as the record over the Dewar Course, though it should not be confused with the high score in the Dewar Match itself; that should be considered a separate proposition. If there is anyone who disagrees with these views let him step forward and state his objections, so that the proposition can be satisfactorily settled and the true record, whatever it may be, be recorded in the archives of the N. R. A. for posterity.

Now, to be a little less serious, I am going to tell the world how Captain Randle secured his title of captain, and I do this knowingly and with malice aforethought, because the joke is not on our good friend Randle, and no one can take the honor away from him, because forevermore, among his good friends at least, he will be known as Captain Randle. Here's the way I got the story:

Very early in August last year there arrived at Camp Perry a certain individual who proclaimed that he was Thurman Randle, of Fort Worth, Tex., who had come to shoot in the matches at Camp Perry, and looked forward to having the time of his life, likewise to upholding the traditions of the great Lone Star State as a breeder of marksmen to the manner born. After telling his simple but straightforward story to the proper authorities he was told to occupy a tent on Officers' Row, which he did, and he found his quarters very comfortable indeed. Very shortly after he had tapped down the stakes in true Camp Perry style, tightened the guy ropes, made up his cot, and taken a good look at himself in the camp mirror, he allowed as how he would take a stroll around camp and see what he could see. After a thorough inspection he decided that it was time for chow, and so returned to his quarters, and to his amazement found that during his absence an orderly had placed the customary identification sign directly in front of his tent with the words "Captain Randle." What to do—call out the guard and demand that the sign be taken away forthwith! Not on your life—titles are not bestowed easily, and therefore must be retained at all hazards. The new captain took another look in the mirror, saluted himself, and decided that Camp Perry was not such a bad place after all, and that Texas had acquired a new and distinguished citizen.

Now you have the true story of how Capt. Thurman Randle got his rank.



Fig. 4. The development gun, a \$16 grade Lefever single-barrel, with compensator and extra tubes, each tube consisting of a recompression chamber and its associated choke. The outfit shown will cover the entire shotgun field in patterns and range, together with a heavy reduction in recoil and jump. Length as shown: barrel 29½ inches; weight, 6 pounds 10½ ounces.

The Compensated Shotgun (Cutts Compensator)

By Col. Richard M. Cutts, United States Marines

IN THE application of the Compensator to rifles, automatics, machine guns and field guns, certain basic effects were secured in reduction of recoil and jump, and an increase in accuracy and velocity. The first three of these were immediately applicable to the shotgun. The increase in velocity, however, was not particularly desirable, as the present velocities with the progressive powders are all that are necessary, and to increase them would serve no useful purpose. Accordingly the excess power developed in the Compensator has been utilized in an entirely different direction.

The shotgun in its present form is very well known, and its powers and limitations well understood. The Compensator in no way affects the ballistics of the gun itself, as it acts entirely after the gun has delivered its charge beyond the muzzle, except for the effect of the Compensator upon vibration. The field is a new one, and the Compensator permits many desirable results to be accomplished in reduction of recoil and jump, and in pattern improvement and control, as well as in other directions. The detailed effects and tests of the Compensator appear in an article by Capt. P. P. Quayle, in *THE AMERICAN RIFLEMAN* for March, 1927. The effects of barrel vibration appear in an article by the same author in the issue of January, 1927.

Space does not permit of a complete description of the Compensator action. Briefly it is as follows: The drive of the gas column against the forward end of the Compensator

expends a great part of its kinetic energy in a counter-recoil effect. The reaction, which is against the following gas column, raises the pressure of the gas in the forward end or compression chamber of the Compensator. This raised pressure acting on the projectile while passing, unobstructed, through the muzzle tube, increases its velocity. A large part of this gas under the increased pressure is exhausted through the Compensator ports in a counter-recoil effect and in counteraction of jump. The design of these ports does not permit the raised pressure to extend as far back as the gun muzzle. It is this pressure secured by the reaction of the kinetic energy against the following gas column which increases velocities in projectile guns. To anticipate, in the shotgun this extra power is used to recompress and realign the shot before feeding it to the choke, without loss of penetrating velocities.

For an understanding of the action of the Compensator on the shot column, it will be necessary to analyze the various factors existing in the uncompensated gun which tend toward the dispersion of this column.

Vibration: It has been found that serious errors in accuracy are caused by vibration, particularly in the shotgun, where owing to great variations in the charge, the vibration is necessarily very erratic. Briefly, the greatest effect lies in the fundamental and first overtone; and in shotguns with their light barrels it is more than probable that the second and third overtones have some effect. All these vibrations coexist.

The vibrations have two major effects—the bend error and the swing error. When a barrel vibrates it is temporarily bent. If the shot emerges at the extreme of one of these vibrations, the barrel is just as certainly bent for that shot as if it had been wrapped around a tree. If the shot emerges while the muzzle is traveling from one end of the vibration to the other, the shot column will have the lateral velocity that the muzzle had when the shot emerged. This is the swing error. The shot column is not a solid, and it is more than probable that the minor vibrations affect different parts of the column, in different degrees, as they emerge from the muzzle, the tendency being to break the column into sections.

The whole subject of vibration is an intricate one, but it is very important as will be seen by the following: A single barrel gun misplaced the center of its pattern 20 inches at 40 yards. This general misplacement was corrected by stiffening and ribbing the barrel.

With the shotgun the effect of the Compensator on vibration is the same as with the rifle; it dampens the amplitude and period of the vibration, and materially reduces the muzzle movement. On the shotgun the effect is greater, for the reason that the Compensator is still reducing vibration while the shot column is traversing the expansion chamber; and when the shot leaves the Compensator tube, realigned, the vibration is at its minimum, with the smaller vibrations probably negligible.

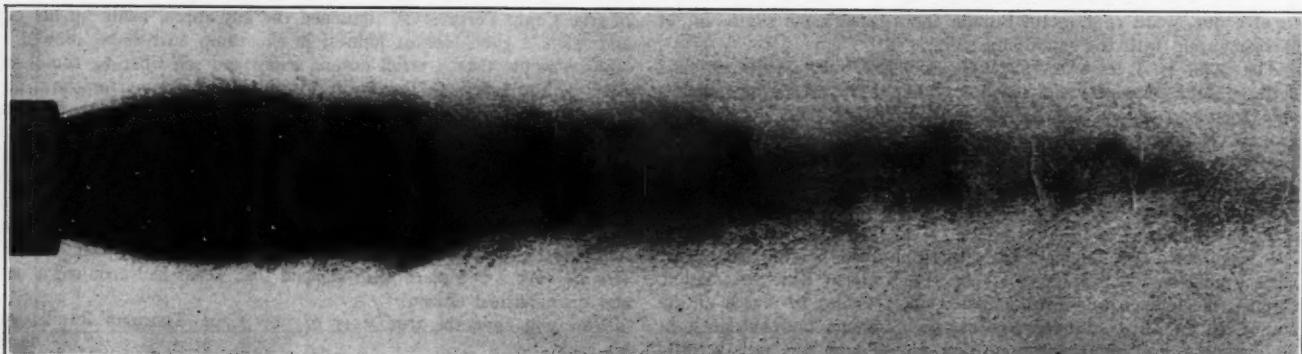


Fig. 1. Showing the leakage gas which has driven past the wads and through the shot column and is emerging from the gun muzzle well ahead of the shot.

Gas effect: There is no known powder wad which will prevent the "blow-by" of the gas into the shot column. The effects of this are well known, but it is not believed that they have been accorded the importance they deserve in relation to their final effects upon the pattern. (Refer to Fig. 1.) The leakage gas seen emerging from the gun muzzle has blown by the powder wads, passed through the shot column, and is emerging from the muzzle well ahead of the charge of shot. It therefore can be stated that the shot column in the barrel contains gas at very high heat and great pressure, the amount of heat and pressure present being dependent largely upon the powder charge used and its type, as well as upon the efficiency of the wads.

A barrel fitted with a pressure gauge at

the breech and another one about 8 inches farther forward illustrates this adequately. In practically all cases where the breech pressure is greatest, the pressure at the second gauge is the lowest. This second gauge ordinarily does not begin to register until the powder wad has passed its orifice; but with the excessively high breech pressures it begins to register before the wad

passes, thus showing that a high pressure exists in front of the powder wad and in the shot column. The conclusion is reached that with very high gas pressures the wads bend out around the edges and do not recover, thus permitting enough gas to pass beyond to materially lower the pressure behind the wads. The high pressures have somewhat higher velocities, but this velocity is acquired at a very early stage of the shot movement. The pressures below must not be confused with those of standard loads for standard guns. A somewhat lesser effect is present in all charges.

1st gauge breech, pounds	2nd gauge 8 in. out, pounds	Time	Velocity, f.s.
12,500	4,200	.00115	1,421
12,500	4,100	.00115	1,453
13,250	3,850	.001	1,457
14,000	3,600	.001	1,527
14,600	3,650	.000725	1,464

When the shot charge carrying the high internal gas pressure reaches the muzzle and emerges, the pressure is free to escape from within the shot column in all directions, with a somewhat explosive effect upon the column unless the column is solidly welded to-

gether, which it is not. This expanding gas imparts lateral velocities to the shot and causes the column to open up. It would be expected that the shot wad would lie against the head of the shot column; however, the expansion of the gas contained in the column is sufficient to blow this wad ahead of the column, even against the air resistance. (Refer to Fig. 2.) Other effects of the gas will be taken up later in connection with chokes.

Effect of the powder wads on the shot column: The driving pressure of the powder wads continues for a certain distance after the wads leave the gun muzzle; and as the shot is no longer supported by the barrel, the rear of the shot column is squashed out. In Fig. 2, which shows the shot group about 10 inches from the muzzle, note the beginning

throughout the column by air resistance, a very uniform, close pattern would result. However, if the adherence is not uniform, and is broken in different parts of the column at different times, never exactly twice alike, patterns will fluctuate greatly, as they actually do. The limitations of the present method of pattern control can be visualized.

An experiment was conducted by Mr. Coxe, of the Brandywine Laboratory of the du Pont company, in which were used in the place of shot, steel balls about the size of No. 6 shot. These of course will not compress, deform or adhere at all. The resulting pattern at 40 yards was uniform, the balls striking the sides of the tunnel, with only 40 per cent in the 30-inch circle.

Great shot adherence, caused by the choke, is essential at present to secure close patterns. Mr. Coxe further states, in his booklet,

"It can thus be seen that when a pellet is not deformed a very low pattern percentage is obtained. This leads to the conclusion that a 100 per cent pattern is only obtainable through the most severe deformation of the shot pellets with its resultant great loss in velocity owing to the increased air resistance."

It may be stated here in advance that the Compensator and tubes permit a new method of obtaining a close, even pattern without great shot adherence, deformation, or loss of velocity.

In Fig. 3 it will be noted that the shot column from this full-choke gun is in three well-defined sections, with the leading section broken open and expanding rapidly (in the large original photograph, it is open enough to show light through the mass). The center section is still very dense; while the rear section has been pancaked badly by the powder wad, and is expanding rapidly. From research work by Capt. Philip P. Quayle, of Peters, there is every reason to believe that the center section, maintaining its velocity better, will eventually drive through the slowing-down leading section, with many shot collisions and consequent diversions. If the longitudinal axis of each section is carried through by eye it will be noted that the axis of the pancake section is fairly true, perhaps a little down, while in the center dense section it is up. Then comes a distinct break, showing best in the original photo. And finally, the axis of the



Fig. 2. Shot column about 10 inches from the muzzle. Note the shot wad driven ahead by the expanding gas from within the column, the beginning of the squashing-out effect of the powder wad on the rear of the column, and the drifting off of shot flakes and deformed shot from the column itself. Full-choke gun.

of this effect. In Fig. 3, the column is about 15 inches from the muzzle, and the pancaking effect on the rear of the column is now very apparent. The "pancake" has lateral velocity caused by the squashing movement assisted by the expanding gas. The gun delivering these shot columns is a full-choke pump.

Effect of the choke: The shot column pushed from the rear by the gas pressure travels toward the muzzle with a heavy coefficient of friction against the barrel walls. This friction produces heat; and this heat, together with the heat of the gases contained in the column, tends somewhat to soften the shot. Upon arrival at the choke the shot column is compressed upon itself with a further production of heat, and a certain amount of adherence and consequent deformation takes place. It is this adherence which causes the choked load to travel a certain distance supposedly as a unit, resisting the tendency of the vibration, the push of the powder wad and the expansion of its contained gas, to disrupt the column.

If this were completely the case, and the adherence uniform and broken all at once

leading section points down. Only the vertical displacements are visible; lateral displacements probably exist as well.

It is of course utterly impossible definitely to state the cause of these displacements. It can only be said that something of this sort was anticipated from the effect of the minor vibrations, the fundamental and first overtone producing displacements of the shot column as a whole.

In Figs. 2 and 3 note the flying out of the

many variables, and only a few of these are under more or less control. The most important of these are: type of powder; actual pressure; efficiency of powder wads; forcing cone; type and kind of choke, and hardness and size of shot.

The Compensator and tubes accept the resultant of all variables, at the gun muzzle, and proceed to rectify this resultant, delivering the shot column from the Compensator muzzle with most of the dispersion forces re-

duced. It is eminently desirable to avoid shot deformation and impaction while the shot is in the gun. The standard barrel, therefore, for the Compensator is only .005 inch down from a true cylinder bore; in fact it is what is called a cylinder by many makers. A greater choke than this in the gun itself lowers the Compensator pattern in the close chokes and disturbs its evenness. The Compensator has been applied to much greater chokes. In the modified cylinder and modi-



Fig. 3. Shot column about 15 inches out. Note the expanded head, the dense middle section, and the pancaked rear section. Full-choked gun.

slivered and all but disintegrated shot from the outside of the shot column. A few of the spots are wad pieces, but those emanating from the column are shot fragments. This incidentally is one answer to the possible 100 per cent pattern for moderate size shot in full-choke guns.

In the cylinder bore there is little or no jamming together of the shot pellets, and the disrupting forces are free to act upon the shot, resulting in the well-known open spotty-cylinder patterns.

The pattern of a choke is dependent upon

moved, or so reduced that the dispersion is mostly secured by the normal resistance factors existing between the gun muzzle and the target.

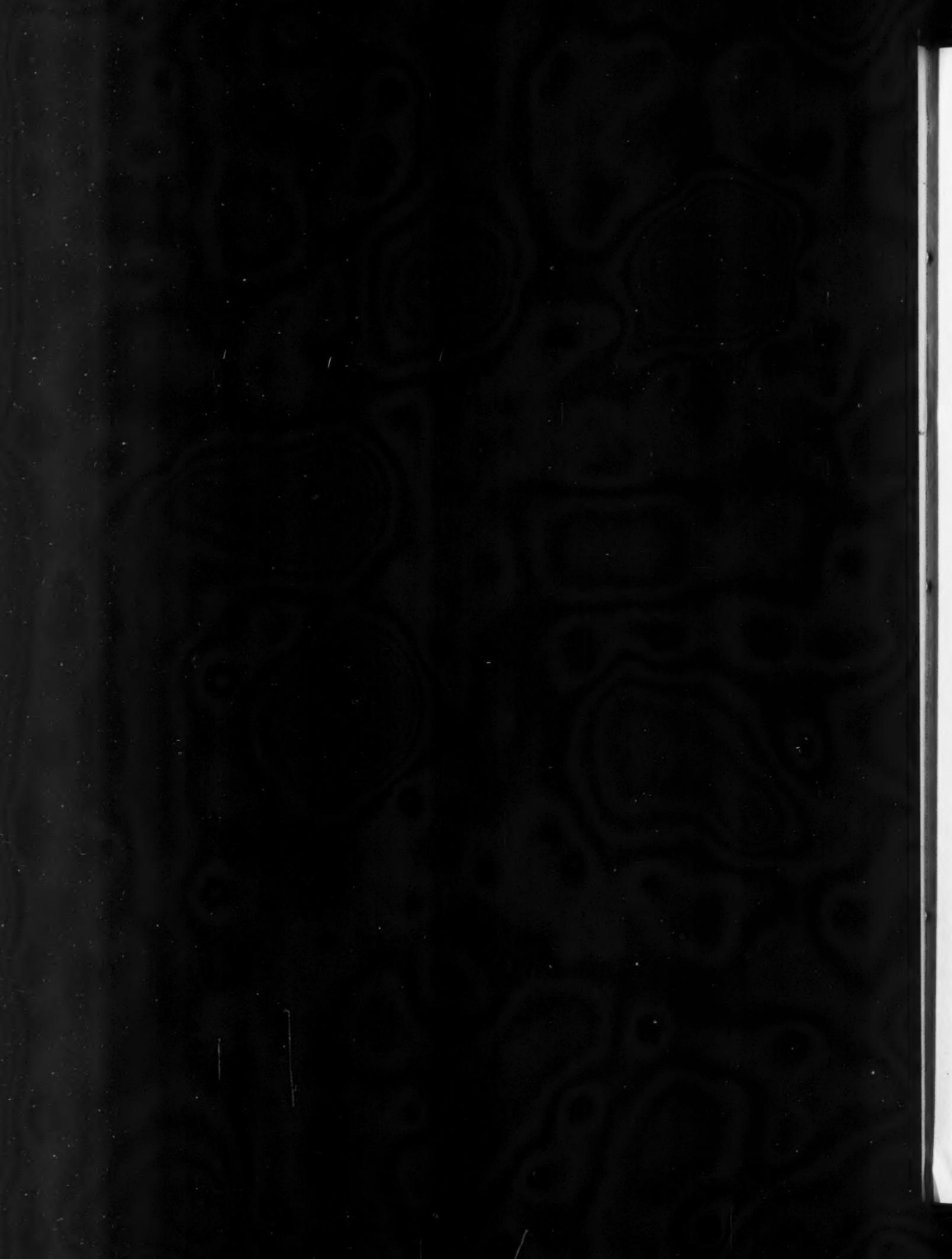
With the dispersion forces removed or greatly reduced, very little shot adherence in the column (with consequent pellet deformation) is required to obtain a close pattern. Due to the slight adherence, even in the close tubes, it is probable that the column begins to expand almost evenly throughout its length; and judging from the patterns secured, the trace of the expansion is very nearly that of a true truncated cone.

fied choke the effects are excellent, but the closer patterns can not be obtained.

In the illustration of the gun, the large chamber seen near the muzzle is the expansion chamber of the Compensator. The tubes contain three separate, distinct cones—the gas compression chamber, the shot recompression chamber, and the choke. The expansion of the shot column while traversing the 2½ inches of expansion chamber is known within limits, the inner diameter of the shot recompression chamber being sufficient to encompass the greatest diameter of

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the expanded shot column. The length, slope and diameter of this chamber to the point where it delivers the shot to the choke are critical; and it is this chamber which governs the general characteristics of the patterns, the choke itself being in the nature of a fine adjustment. Though these are distinct cones, the sharp edges of joining are rounded off in practice, and the appearance to the eye is that of a varying-taper chamber.

Fortunately this shot recompression chamber has worked out practically in three general types. One type is used in combination with certain chokes for all heavy loads of heavy shot; another for intermediate loads, and a third for light loads. More were unnecessary, for an unexpected result discovered on the range showed that as the loads were progressively increased each type of recompression chamber merged into the next higher, giving a definite pattern variation according to the loads used.

The action of the Compensator is as follows: The shot column upon leaving the gun muzzle enters the expansion chamber. At this point it contains all the disrupting forces of the uncompensated gun, save the effect of the vibration which has been reduced. During passage through the expansion chamber the interior gas pressure is mostly discharged and the shot somewhat cooled. Also, the shot column has lengthened on itself as well as expanded laterally. The shot then enters the recompression chamber, where it is realigned and recompressed; but owing to the fact that the column has elongated (providing additional space between the various pellets) the shot are brought into close contact without great jamming and deformation. Also the interior diameter of the Compensator choke is always considerably greater than that of the gun. Thus a rectified, cooled column of shot is fed to the Compensator choke. Owing to the great reduction in lateral velocities when the shot finally emerges from the Compensator, no very great shot adherence is necessary to secure the desired pattern. As great gas heat and frictional heat do not occur at the same time in the Compensator choke as they do in the gun, the shot are harder, do not adhere as closely, are not as badly deformed, and velocities do not suffer.

It is undoubtedly a fact that some pressure still exists in the shot column with the rise in pressure due to the Compensator; also that the powder wads still tend to squash out the rear end of the shot column, to a slight extent. These effects are inescapable unless much lowered velocities are acceptable. That they are much reduced can be seen by the patterns obtained; and as the velocities are satisfactory there is nothing practically to be gained in accepting a lowered velocity for an increase in an already excellent pattern.

Patterns: It was realized from the early firings that the governing conditions of patterns had changed. Accordingly previous experience and fixed ideas had to be disregarded in developing the actual pattern tubes. The firings were conducted to secure tubes and patterns, and to produce a standard barrel

which would result, as one very prominent shotgun authority puts it, in a gun which "can not help but kill."

Field conditions only were considered, artificialities being avoided. Loads were purchased indiscriminately from dealers' leftover stocks, age unknown. The weather conditions were those of the open range, mostly in winter, temperatures ranging from 30 to 45 degrees, wind usually nine o'clock from 10 to 18 miles per hour. In other words, the Compensator and tubes were developed under the conditions in which they would be used.

The system employed was to take a somewhat too dense pattern, permitted by a certain combination of recompression chamber and choke; and, by adjustment, to open that pattern until there was an even and killing distribution of pellets, not only in the 10-inch circle, but between the 10- and the 20-inch circles, the 20- and 30-inch circles; and, if there were sufficient pellets left over, to go as far outside the 30-inch circle as possible. This adjustment for effects extends to other than the 40-yard range, with varying loads in the same tube.

In general the arrangement is as follows: Light loads from 30 to 40 yards; intermediate loads from 40 to 60 yards; heavy loads from 40 to 70 yards, and with the tubes for these classes, and the usual loads for these classifications, nearly every make of load will give most excellent patterns; some a little better than others, naturally, but all very good.

In the field a clean kill usually brings out the remark, "that one was centered." With this in mind every advantage was taken of the opportunity afforded to produce patterns that are practically all center so far as killing is concerned, up to the range where that charge and that shot size should be used.

In order to present the results secured, along the lines of accepted practice, which is based upon the pattern on the 30-inch circle at 40 yards, the results are given in relation to that circle; but the inner circles are given as well, and also the sheet patterns, so that the reader can visualize the dispersion and observe the expansion of the patterns.

The sheet pattern is the total number of shot on the 40-x-44-inch target sheet. It can only be taken accurately when the center of the pattern approximates the center of the sheet. As this seldom if ever happens outdoors, the sheet pattern is penalized accordingly, and is usually greater actually than the figures show.

Chokes as they exist are all variable in names, and mean different things, according to the maker. As they do not apply to the Compensator tubes these at present have not been named, but are given a number corresponding to the diameter of the outer end of the tube in thousandths of an inch, the smallest number being the greatest choke, and the largest being the cylinder. As the values are very close the progression in chokes is probably better indicated by the numbers than by naming the chokes.

Fifteen types of tubes were produced and tested, of which five were adopted as covering the field of the shotgun from every

practical point of view. They are: 690, 693, 705, 725 and 740. The last is a true cylinder. They will, it is believed, meet satisfactorily every condition of country and game, as well as give a wide latitude for individual preferences. They tend to close with varying heavier loads. An extreme case of this occurs with the 725 medium distance tube for the 3 dram 1 1/4 No. 7 1/2 load, which will close from 15 per cent to 20 per cent when used with the 3 3/4 Oval 1 1/4 No. 6 load, due to the increased welding action of this type of recompression slope. The pattern will not be as regular as that given by the tube designed for that load, but it is not at all bad for emergency use. The same effect is found in the long-range tubes, excess pressures resulting in very dense patterns, the reverse of usual performance. A noticeable increase in recoil is followed by a very close pattern: on a run of 3 3/4 Oval 1 1/4 No. 6 shot with a general average of 84 per cent at 40 yards an extra heavy recoil ran a 92.3 pattern.

Owing to limitations of space only a few runs can be presented here, sufficient, however, to illustrate the type of patterns obtained. The final test will be in the kill under all conditions, and not the pattern sheet. The patterns given are the original development patterns, no patterns being omitted from the run average if the 30-inch circle is on the paper.

Tube 690. For all heavy loads and long range. Patterned with No. 6 shot up to 50 yards. Worked out to secure cross of Nos. 2 and 4 shot approximately at 60 yards.

SUPER X NO. 4 SHOT
172 PELLETS

Yards	10-in. circle	Between 10 and 20	Between 20 and 30	30-in. circle	Per cent	Sheet per cent
40	35	59	48	142	82.5	95.1
50	24	42	51	117	67.7	94
60	27	31	38	96	55.5	86
70	13	16	50	79	45	67
80						

PETERS 3 3/4 OVAL 1 1/4 NO. 2 SHOT
115 PELLETS

Yards	10-in. circle	Between 10 and 20	Between 20 and 30	30-in. circle	Per cent	Sheet per cent
40	23	41	30	94	82.5	91.3
50	18	34	34	86	75	94.7
60	9	21	35	65	55.5	78
70	7	16	22	45	38.8	62
80						

Sheet pattern 43.4

It is impossible to center outdoors at 80 yards. Five consecutive shots gave sheet pattern average of 43.4 per cent. Six pellets of this load mean about 5 per cent.

PETERS 3 3/4 OVAL 1 1/4 NO. 6 SHOT
280 PELLETS

Yards	10-in. circle	Between 10 and 20	Between 20 and 30	30-in. circle	Per cent	Sheet per cent
40	54	90	83	227	81	94
50	36	60	76	172	61.4	82

Tube 693. Special tube. As No. 6 shot is a favorite load with the 3 3/4 Oval 1 1/4 shot, a special tube was worked out for it, as well as to get a trap pattern of about 71 per cent. A 10-shot series is given in detail for one load, and the averages for another 10-shot series run with another load immediately

afterward. Wind 9 o'clock, 10-12 m. p. h. temperature 45 degrees. No corrections applied. In the interior circles a very slight misplacement of the ring will have great effects. Note, however, the consistent densities. As the two loads differ by about 12 pellets, check the final percentage.

SUPER X NO. 6 290 PELLETS					
Yards	10-in. circle	Between 10 and 20	Between 20 and 30	30-in. circle	Per cent
40	65	102	86	253	87.2
40	57	102	90	249	86.0
40	57	93	91	241	83.1
40	60	118	75	253	87.2
40	55	104	92	241	83.1
40	73	90	79	242	83.2
40	75	90	82	247	85.2
40	68	110	65	243	83.4
40	70	89	94	253	87.2
40	68	105	76	259	89.3
Average	65	99	84	248	85.6

PETERS 3 1/4 NO. 6, 40-YD. AV., 10 SHOTS
278 PELLETS

Average 61 86 84 231 82.7

5 SHOTS, PETERS LOAD ABOVE
Average per cent

50 yards	55.9
60 yards	57.7

Tube 705. Approximates an excellent normal full choke. The even flow of the pattern densities from the interior to the outer circles as previously shown is characteristic of all tubes. The 30-inch circle only will accordingly be given.

PETERS 3 1/4 OVAL 1 1/4 NO. 6
278 PELLETS
Average per cent

40 yards	81
50 yards	59
60 yards	44.8

Compare these patterns with those of the same loads in the 693 tube.

The remaining tubes are primarily designed for the lighter bird loads; but as stated before they have the peculiar property of closing the patterns as the heavier loads are used.

Tube 725. May be classed as an all-around bird tube, this tube giving the following:

3 DR. 1 1/4 NO. 7 1/2, 40-YARD AVERAGE
465 PELLETS

10-in. circle	Between 10 and 20	Between 20 and 30	30-in. circle	Per cent	Sheet per cent
43	99	181	273	58.6	86.0

WITH THICKET LOAD—3 DR. 1 1/4 NO. 8, 30-YD. AV.
515 PELLETS

10-in. circle	Between 10 and 20	Between 20 and 30	30-in. circle	Per cent	Sheet per cent
76	184	133	343	66	85.0

The No. 8 shot is rather dense at 30 yards, the same load in No. 6 shot being better.

The next tube is a return to the true cylinder, but the expanded shot column is brought down to 740, a considerably larger diameter than that of the gun bore. The patterns are excellent, and spotty only with very soft shot.

TUBE 740, SAME 7 1/2 LOAD AS ABOVE, 40-YARD AVERAGE

10-in. circle	Between 10 and 20	Between 20 and 30	30-in. circle	Per cent	Sheet per cent
28	90	100	218	46.8	72.0

SAME THICKET LOAD AS ABOVE, 30-YARD AVERAGE

10-in. circle	Between 10 and 20	Between 20 and 30	30-in. circle	Per cent	Sheet per cent
61	148	117	326	62.8	81.0

Through the courtesy of Mr. Coxe of the du Pont Laboratory, standard loads of No. 6 shot were put up with the powder wads set at a 30-degree angle, thus permitting the full force of the gas to enter and blow through the shot mass. It was desired to test the rectifying effect of the tubes under the worst conditions possible. A series of 10 shots gave the following high and low, with the rest intermediate:

266 PELLETS, 40 YARDS

10-in. circle	Between 10 and 20	Between 20 and 30	30-in. circle	Per cent
High	62	90	60	78.9
Low	69	57	210	63.4

In the high, the powder wads probably rectified their position almost completely with a gas leakage only a little above normal; but in the low the pattern holes were ragged, and this shot shows definite shot balling, the only balling that has ever occurred in the Compensator. Even at that the pattern was not so very bad. This result tends to confirm the theory as to the effects of pressures at high heats within the shot column.

For the trap a somewhat different situation exists than for birds. A cross section of what may be expected with the standard 3 dram 1 1/4 ounces of No. 7 1/2 shot with all the tubes is given.

40 YARDS

Tube	Pellets	10-in. circle	Between 10 and 20	Between 20 and 30	30-in. circle	Per cent	Sheet per cent
690	447	81	127	130	338	75.6	90.0
693	465	58	143	130	331	71.1	90.0
705	465	61	112	134	307	66.0	86.4
725	465	43	99	131	273	58.6	86.0
740	465	28	90	100	218	46.8	72.0

While holding satisfactory interior densities note how the patterns flow outward from the inner circles, and particularly the balance maintained between the 20- and 30-inch circle. As the shot flow out over the 30-inch circle note the sheet pattern. A higher 30-inch pattern than the 690 given can be secured only by excessive densities in the inner circles and a robbing of the 20-30-inch band; which band, I believe, from observation to be a very important one, except with the most expert shot. Personally I rate about the 705, with good chances in the 35-inch circle. The check gun on weather conditions is a pump gun which has been patterned consistently for more than 16 years.

Without going too much into detail it may be stated that the best heavy shot series ever taken was in winter, with a low barom-

eter, low humidity, temperature 45 degrees and a 9-o'clock 10-12 m. p. h. wind blowing. The lowest series was made in spring, with high barometer, great humidity, temperature 82 degrees and a 15 m. p. h. 12-o'clock wind. The average percentage drop between the two was 6 1/2 per cent. The average series percentage variation is usually about half that. Curiously enough the light loads at 40 yards were not seriously affected.

The tubes are best with a good hard shot of standard size. The Western shot are much smaller in the rated size, and will cause variations in pattern, as they increase the gas pressure. This applies only to tests; actually the effect is negligible. Soft shot disturb the pattern by adherence and deformation. The tubes are designed for good chilled shot.

There will always be holes in every pattern, owing to influences beyond control; and patterns will vary somewhat from shot to shot. But with the tube patterns these variations are small, and there is little or no bunching; at 20 yards with a heavy load practically every shot can be counted.

The pattern opening permitted by the tubes is so regular that it can hardly be detected by the eye if patterns are taken in succession with the series of tubes, and not compared closely.

Velocity: The 3 3/4-1 1/4 No. 6 load was chosen for penetration tests at 50 yards. It was not only necessary to obtain satisfactory velocities, but barrel length had to be reduced to permit the Compensator and tubes to be applied without alteration in the normal gun length, or a disturbance of the gun balance. At this range the barrel length was progressively reduced until the desired length was secured, which is 24 inches. Various resistances were used, including geese; and it was practically determined that the penetration of this length of barrel with the Compensator is satisfactory.

The gun was then taken to the Brandywine Laboratory of du Pont to determine the velocity of this practical penetration, the same loads being used. These still being about-town purchases of unknown age.

The average of the 25 shots fired with the close tubes was 951 foot-seconds average velocity for the 40-yard range, the low being 918 and the high 1,016.

It was believed that the tubes so handled the shot that the velocities of the outside shot still held up well. The gun was accordingly held off the registry disk until the mechanism failed to register. Five shots were then fired around the disk, keeping the disk in the edge of the pattern. The velocities secured were 908, 929, 898, 924, and 876; average, 907. Consequently the pattern edge will kill.

As the line of sight had not been restored after mounting the Compensator it was quite difficult to keep the center of the pattern on the disk, and in consequence the average velocity recorded for the 25-shot string is a little below the true; but it is practical, nevertheless, for the bird is not always centered.

Limitations in size and weight of the Compensator do not permit the full recoil effect possible to be used. It was deemed sufficient so to reduce the kinetic energy of the recoil as to remove the punishment, transforming the recoil from a blow to a shove, and thus permitting long continuous firing with the heaviest loads without inconvenience. Enough gas is used in overcoming jump to save the blow to the face. These two effects alone justify the Compensator.

In order to secure the maximum results possible with respect to recoil, jump and vibration, the development gun had to be light in every way; and yet for reasons of personal safety, it had to be strong and well made to withstand the long and continuous pounding of loads for which it was never intended. Accordingly the \$16 grade single-barrel Lefever was used, and is the gun with which all these patterns have been made. It has for many months stood up against the heaviest duck loads, and is still in perfect condition.

The recoil of this little gun with these heavy duck loads becomes, after a few shots, positively painful. The Compensator was adjusted to it in recoil reduction until as many as 150 to 200 rounds of these heavy loads have been fired in a day without any inconvenience. It weighs as illustrated, Compensator equipped, 6 pounds 10½ ounces. As the formula for recoil is one-half the mass times the square of the velocity, with a standard Compensator of the same power an increase in the mass (weight) of the gun will further reduce the kinetic energy of the recoil; and with the gun weights really necessary to handle these loads generally for reasons of safety, the recoil will be further reduced.

A word of caution: The greatly reduced shock of recoil makes it appear that the gun is under less strain. This is absolutely not the case, and gun weights can not be reduced by reason of the recoil reduction of the Compensator, unless very special steels are used. Guns need not be heavy for recoil

reasons alone, but they must have the necessary barrel strength to stand up under the high pressure which sometimes develops.

The light, unsupported barrel of this gun would give the greatest whip and vibration possible with the heavy loads, and thus test the vibration control of the Compensator to the limit. The patterns obtained are sufficient explanation of the effects secured.

The 24-inch barrel is standard; and the Compensator and 690 tube brings the total barrel length to 30 inches. With the other tubes it is 29½ inches. Shorter barrels may be used for brush work provided the standard slight choke is bored. The Compensator and tube weigh about 8½ ounces; and from this must be subtracted the weight of the 6 inches of barrel taken off in order to obtain the value of the net increase in weight. The gun as it stands is in excellent balance, and the slight change in weight is hardly perceptible on heavier guns. The sight line is raised about three-tenths of an inch.

Many of the effects of the Compensator may be accentuated at the expense of others. However, the work has been confined to produce a resultant having the best effects possible in the field, with a careful consideration of relative values.

The writer in a lifetime of shooting, in many countries, has seldom if ever had his proper guns on a trip, or his proper barrels and choke for the field conditions of that day; or in fact, a sufficiently large pocket-book to have the proper guns and barrels for all conditions, to say nothing of several gun bearers to carry them if he had them.

One Compensated gun only is necessary, the other four or five guns consisting merely of tubes, weighing a few ounces each. This arrangement permits the proper type of gun to be in your possession for any type of shooting that may be encountered, as well as permitting a change of gun for changed conditions during the day, or for a change of game on a day's hunt.

The tubes themselves are short metal, and the slopes and cones may be established in quantity production, by standard reamers;

and the lottery element in obtaining a gun for some special purpose, or in fact for all purposes, should be practically eliminated. There are many variables in a gun, yet the rectification of the shot column is so uniform that close approximations to the effects stated may be secured with quite wide load variations, under similar weather conditions.

At present the Compensator has been developed for the single and pump guns. The same design should do for the automatic, by merely reducing the recoil absorbing elements in the mechanism, as is done on the 30- and 50-caliber machine guns. The development for the double has just begun. In this the gas delivery will be vertical, as is the case with the multiple-mount machine guns.

In regard to game effects, the good shot who centers his game will bag more and kill less than the indifferent shot who registers only with the outside edge of his pattern. A single shot in the abdominal cavity usually brings death from peritonitis, perhaps days later. With a better type of dispersion the indifferent shot will land several more pellets with the same aiming error, and the bird is brought to bag. Bag limits may be set, but there is no bag limit on the wounded birds who afterwards die. In pulling a bird out of a flock, many are hit by the low velocity, widespread outer pattern edge of the old type pattern. Compensator patterns do have wild shot; and if one unduly stretches the range for the load, size of shot and tube, birds will be wounded without being killed.

A one-gun man must use his one gun for all conditions, and a two or three gun man may not have the other guns along. The great availability and interchangeability of the Compensator tubes alone should have a decided effect upon reducing the number of wounded birds by permitting the existing conditions to be met by the proper gun and choke, with the result of more birds in the bag and less killed.

The three spark photographs accompanying this article are by Capt. Philip P. Quayle, of Peters Cartridge Co.

unless you intend to shoot him. Good dope, whoever it was that said it.

Injuries from firearms among those who use them the most are probably much smaller in number than accidents from the game of golf; but the danger is always present and we should all be very very careful.

A. NUT.

IT WORKS

WHAT one of our readers wrote to another regarding an advertisement placed in the Arms Chest:

"Yours is the forty-second answer I have had to that advertisement. It sure pays to advertise in THE AMERICAN RIFLEMAN. I could have sold three dozen guns of that kind."

Can you beat that for results? Better advertise some of that extra equipment of yours which you no longer need.

From the "Receiving End"

AT A recent pistol match one of the participants was shot through the ankle by an accidental discharge of an automatic pistol.

The owner of the gun had fired ten shots at a target, and after leaving the firing point handed the gun, with magazine pulled part way out, to a friend to try the trigger pull.

The owner was a careful man, as evidenced by his having released the magazine; and the one who held the gun when discharged is entirely familiar with the handling of firearms and is also considered to be a very careful man.

The ordinary, or better-than-ordinary, care was used, but still there was an accident. The wound was promptly and thoroughly sterilized and the patient given tetanus serum,

and suffered little inconvenience from the wound. He feels that, as having been on the receiving end in this case, he may be privileged to suggest a few "don'ts":

Don't try your trigger pull in a crowd, or allow anyone else to do so. Go down cellar alone when the folks are away and try it to your heart's content.

Don't take some other fellow's or your own rifle off the rack and point over the shoulder of some fellow who is on the firing point. If you wish to try the balance of the gun or see how you like his scope do it on the firing line.

Don't ever point or carry the muzzle of any firearm past any person at any time under any circumstance. I believe Crossman or Macnab says never to point a gun at anyone

National Matches Assured Annually

By Brig. Gen. M. A. Reckord

IN THE closing days of Congress our new National Match Bill, H. R. 13446, was passed by the Senate, and having previously passed the House then went to the President for his signature. The bill was signed by the President on May 28. This brings to a successful conclusion the fight of the N. R. A. for the National Matches as an annual affair.

H. R. 13446 was presented to Congress after the President had vetoed our original bill, known as H. R. 8550. The original bill provided in mandatory language for holding the National Matches annually, but in the Senate the bill was amended by Senator Brookhart, over the strenuous objection of the writer, and a provision was added for a large National Board for the Promotion of Rifle Practice, the majority of the members being named to the Board by the Governors of the several States. When the bill reached the President it was submitted to the Attorney General, who declared it unconstitutional and the veto resulted.

A conference was immediately held between Senator Brookhart, Representative Speaks, and the writer, at which conference the writer offered a new bill which met all the objections President Coolidge had mentioned in his veto message. After some discussion, Senator Brookhart promised not to attempt to amend this bill, and thereupon the bill was given to Representative Speaks, who immediately presented it in the House. The bill promptly passed the House, went to the Senate where, on Friday, May 25, a hearing was granted by the Senate Military Committee. The bill was unanimously reported without amendment and passed the Senate that afternoon. It then went to the President who, on the afternoon of May 28, signed the same and it now becomes law.

The provisions of the bill make it mandatory that the matches be held annually. Section 2 of the bill states the classes from which the contestants are drawn and also names competitions and matches which go to make up what is known as "The National Matches."

By enacting this bill into law, it will no longer be necessary for this Association and others interested in the National Matches to put up a fight every year in order that the matches may be held. The mandatory language of the bill provides that the matches shall be held and authorizes the appropriation of sufficient money for carrying out this purpose. This will mean in the future that the War Department in its original set-up of the War Department Budget will provide for the matches; also that the Budget Bureau will see that this item is included in the Budget as it goes to Congress. Congress, it is believed, because of the fact that they have passed this bill, will see to it that sufficient funds are provided each year. All

these steps are now guaranteed, and it becomes unnecessary for us to fight in order to secure the money necessary to the conduct of the matches each year.

The successful outcome of this fight is most gratifying and it is the writer's opinion that the shooting fraternity owes to Representative Speaks, of Ohio, a real debt of gratitude. He has led our fight in Congress and he has fought every step of the way. Without General Speaks I am doubtful if we could have accomplished the result we desired, and I believe it will be a very gracious thing for our members to do if they would sit down and write General Speaks a letter of thanks for the part he has played.

While General Speaks has led our forces, there are many others who have rendered material assistance. But for the unfailing support of our State Committees and others "back home" this fight could not have been won.

I wish to again thank all those who assisted in any manner and I wish them to know their efforts are appreciated.

The full text of the new law is quoted below:

H. R. 13446—TO AMEND THE NATIONAL DEFENSE ACT.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Act entitled "An Act for the promotion of rifle practice throughout the United States," approved February 14, 1927 (Forty-fourth Statutes, page 1095), which adds an additional paragraph to section 113 of the National Defense Act, is hereby amended to read as follows: "That there shall be held an annual competition, known as the national matches, for the purpose of competing for a national trophy, medals, and other prizes to be provided, together with a small-arms firing school, which competition and school shall be held annually under such regulations as may be prescribed by the Secretary of War."

SEC. 2. The national matches contemplated in this act shall consist of rifle and pistol matches for the national trophy, medals, and other prizes mentioned in section 1 above, to be open to the Army, Navy, Marine Corps, National Guard, or Organized Militia of the several States, Territories, and District of Columbia, the Reserve Officers' Training Corps, and the Citizens' Military Training Camps, rifle clubs, and civilians, together with a small-arms firing school to be connected therewith and competitions for which trophies and medals are provided by the National Rifle Association of America; and for the cost and expenditures required for and incident to the conduct of the same, in-

cluding the personal expenses of the members of the National Board for the Promotion of Rifle Practice, the sum necessary for the above-named purposes is hereby authorized to be appropriated annually as a part of the total sum appropriated for national defense: *Provided*, That no competitor shall be entitled to commutation of rations in excess of \$1.50 per day, and when meals are furnished no greater expenses than that sum per man per day for the period the contest is in progress: *Provided further*, That in lieu of traveling expense and commutation of rations while traveling the sum of 5 cents per mile may be paid to civilian competitors, and such travel pay for the return trip may be paid in advance of the performance of the travel.

SEC. 3. For the incidental expenses of the National Board for the Promotion of Rifle Practice, including books, pamphlets, badges, trophies, prizes, and medals to be expended for such purposes, the sum of not more than \$7,500 is hereby authorized to be appropriated annually.

TOURISTS' ROAD MAP OF ONTARIO AVAILABLE

ONTARIO—DEPT. OF PUBLIC HIGHWAYS,
Toronto 5, May 29, 1928.

To the Editor.

Dear Sir: Herewith we are sending you one copy of our official 1928 Government Road Map of the Province of Ontario, Canada, published by this department. You will note that this map shows in red all paved roads and in blue all improved gravel roads, while the connecting roads, which are shown uncolored, will all be found in good condition for motor vehicle travel during the touring season in Canada from May to October.

On the reverse side will be found a sketch map showing northern Ontario. There is also given on the reverse side some descriptive articles on the highways of Ontario, Canadian customs regulations, road mileages, etc., all information that we trust will be of service to American motorists visiting Ontario.

A large edition of these maps has been printed, primarily for use of tourists, and copies will be available for any of your subscribers that might care to write this department; or should you prefer it, we would be glad to supply you with a quantity for this purpose.

Yours very truly,
K. A. COCKBURN, Secretary.

Deviation From Line of Aim

By J. R. Mattern

THIS is a story of the .270 Winchester cartridge and rifle, and what they have done in the field. If the telling seems to start some distance from the immediate subject, it is done in order to get the angle of view deserved by .270 nature, and earned by its observed performance.

Thirty years ago two cartridges, now pretty completely obsolete, were very popular among practical shooters. They were the .38-55, which was used to make 200-yard groups as small as $1\frac{1}{2}$ inches in diameter, and the more adequately powerful .45-70, which would shoot minimum groups at all ranges only from rifles weighing upward of 16 pounds. The story of why these two good old cartridges became obsolete is the story of the very real excellencies of the present Winchester .270. Neither the introductory articles in the various magazines, which appeared two or three years ago, nor the advertising matter of the Winchester company since, has presented to shooters a clear statement of the essential facts. They gave velocity and other figures, but left it to us to interpret what those figures meant.

For purposes of illustrating the vital differences in the work of the various cartridges, it is necessary to have a definite picture in view. Let us take this picture. Early one recent morning I was humming along a country road when a deer—a young doe—suddenly appeared on the left, running with the car, and seemingly bent on crossing the road ahead of it. The speedometer showed 40 miles an hour for at least 100 yards. The little doe fully maintained the gait. She gradually edged in dangerously, however, and to avoid an accident, the car was slowed down to 25 miles an hour, when she gained a length or two, then sprang across ahead. What speed her plump gray body had through the air in the middle of jumps we can only guess. Some fractional-second slowing up was inevitable every time her dainty, flickering feet touched the ground. Anyhow, she made 40 miles an hour on the average, which is 59 feet per second.

Game animals and hunting ranges vary; but for purposes of judging the desirability of a cartridge the ease of hitting a deer going past us broadside at the rate of 59 feet a second is a fair test. We will leave the easy shots, for the time being, to fair-weather hunters.

Let us in judging our modern cartridges suppose we stand 300 yards away from the running deer. The figures of longer and shorter ranges would be just as interesting for our purpose, but we haven't space for all; and what happens at 300 yards happens at 200 and at 150 yards, differing only in degree.

Now, at 300 yards a .45-70 bullet, of 405 grains' weight, fired at 1,360 f. s. muzzle velocity, is plunging down across the deer's

EDITOR'S NOTE.—Having seen little in print regarding the .270 Winchester, and believing that this is probably one of our very best modern all-around hunting cartridges, we enquired of the Winchester company if they could give us the names of some practical riflemen who had had experience with this cartridge in the field. Winchester could not name anyone offhand, but we happened to remember our good friend J. R. Mattern, who prepared for us this interesting article. We shall be glad to hear from others who have used the .270 Winchester in the field, in order that the practical efficiency of this cartridge may be established and made known for the benefit of all of our readers.

body at a 45-minute angle—that is, it is falling at the rate of about 45 inches to the hundred yards (falling nearly four feet) or enough to miss a boy, let alone a deer. To reach the 300-yard point, it rose all of 28 inches above the line of aim. To find the deer's body with this bullet, a shooter has to guess the exact range within 20 yards. If his guess is 10 yards short, or 10 yards long, his bullet will fly under or over the game. And while the bullet is traveling the 300 yards his deer is going to *move 60 feet or more*, for the 300-yard time of flight of this .45-70 bullet is *about one second*, without considering barrel time, rifle-lock time, and the time consumed in the shooter's personal reaction in pulling the trigger. Sixty feet, in your woods, is how many doe jumps—two, three or five?

It is no wonder that among old hunters there is a settled conviction as to the foolishness of shooting at game over the longer ranges. With such cartridges they—well, as with the egg that looked best scrambled, their usual shooting looked best within 50 or 100 yards. Despite the accuracy of their old rifles and cartridges, they had to make too much correction and allowance in sighting. Their bullets deviated too much from line of aim.

The first step in retiring .38-55, .45-70, and their class of cartridges was the development of .30-30, .30-40, and other 2,000 f. s. velocity cartridges. At 300 yards the .30-30 bullets have halved the downward plunge of .45-70 bullets. They are falling on a $21\frac{1}{2}$ -minute angle, or around 22 inches to the hundred yards, permitting you to mistake the exact range by 25 yards each way without missing the deer under or over. They rise 18 inches in getting out to the 300-yard point. Their time of flight is six-tenths of a second. The doe can't make as many jumps as before, but she can get 36 feet

away from the spot she occupied when you pulled the trigger.

No; the .30-30 did not prove to be the millennial cartridge, after all. Its bullets also displayed too much deviation from line of aim.

The next important step toward the light was the gradual popularizing of the .30-06 with 150-grain bullet at 2,700 f. s. velocity, and several other similar loads. The development of these loads was made in the face of obstacles. It was found that the old cupronickel bullets performed at this new high speed in surprising ways, now whistling through an animal without lacerating, now going to pieces at the first touch. Metal-fouling of barrels became a factor. Recoil began to disturb and excite the average hunter, as with .45-70. We were up against the problem of *delivering* the most possible of bullet with the least possible of gun that could be carried comfortably and quickly aimed. We had to construct bullets that would mushroom and penetrate reliably in game, that would shoot cleanly in barrels, and that would better retain their momentum in the air. Deviation from line of aim was dealt its first real defeat by this cartridge. Game-shooting at ranges upward of 300 yards, for the first time in history, became a practical thing, instead of merely a good gamble.

The .30-06 bullet of 150 grains fired at a muzzle velocity of 2,700 f. s. passes the 300-yard range on a downward drift of only about 10 minutes, or falls there at the rate of only about 10 inches to the hundred yards. With it we can hit a 300-yard deer with a range estimate of anywhere between 250 and 350 yards. Between gun and game, the bullet rises only about 7 inches. The time of flight is four-tenths of a second, which allows the deer to move only about 25 feet from where you pulled trigger on it. This is the level of attainment of the dozen or so better cartridges of today, excepting only the three or four leaders. These are the deviations, incidentally, for which you must learn to make allowances if you wish to regard yourself, secretly, as a game shot.

It will be observed that nothing has been said about either grouping ability or muzzle energy of these cartridges. Those things are vital, but actually are not the controlling factors in making a rifle practical and effective in the woods. The more precise a rifle shoots the better it is; but the .38-55, recoil, will make $1\frac{1}{2}$ -inch groups at 200 yards. The harder a bullet strikes the better its killing power. Still, no one ever questioned the striking force or killing capacity of a .45-70 bullet, yet today every factory has discontinued making .45-70 rifles. Other qualities than ultimate grouping ability and knockdown energy control a cartridge's success in the woods, as shall be shown.

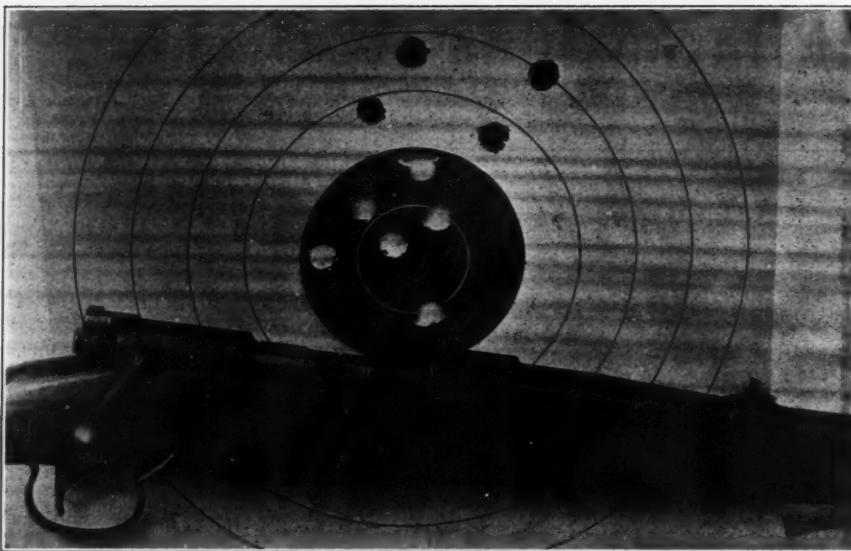


Fig. 1. A typical five-inch group made at 200 yards with the .270 Winchester rifle shown. The bull's-eye is four inches in diameter, and the bullet holes were enlarged to the size of a cartridge head in order to have them show in the picture.

About 16 years ago the Ross Rifle Co., and many hunters, thought that they had the next advance step. In the .280 Ross cartridge they had deviation from line of aim reduced to a remarkable minimum, and had really a wonderful cartridge, with features essential for out-performing any older cartridges. Three faults, however, kept this cartridge from growing in popularity. No factory at that early day knew just how to construct a bullet equal to high-speed duty. The "copper-tube" bullets mushroomed too quickly and completely without giving enough penetration in some angling shots in heavy game. The hollow-point, soft-steel jacketed bullets failed at times to mushroom at all. In addition, there were important faults in the boring of the barrel and in the rifle action, while the recoil relation was too high for fine work by the average man. The cartridge developed a little too much bullet energy for a comfortable weight of gun.

Then we had other attempts to realize reduced deviation ideas in actual steel and copper and lead. There is the .250 Savage. There is the .300 Magnum. There are, in particular, various new loads for older cartridges, notably for .30-40 and .30-06. These highly developed cartridges and loads we have available today, in good rifles, and it is with them that the newest member on the list—this .270 Winchester—must be compared. The new cartridge has a real reason for existence only if it gathers the advantages, without the faults of older steps to decrease deviation, as has been explained. It is worthy of our carrying to the woods only if it occupies that certain place on the scale of power which enables it to deliver, comfortably, in your hands, more practical effectiveness on game than other present-day cartridges and loads.

At this point, in order to present the necessary comparisons at a glance, it is well to set down two tables of ballistic figures.

300-YARD SHOOTING FROM 1890 TO 1928, STEP BY STEP—HOW MUCH BULLETS DEVIATE FROM LINE OF AIM, AND WHY

Cartridge	Vel. f. s.	Ballistic coefficient	Time of flight, seconds	Angle of de- parture, minutes	Trajectory midway, inches	Angle fall, minutes	Total fall, feet
.45-70-405	1,360	.220	1	36	28	45	9
.30-30-170	2,000	.261	.6	17½	18	21½	4½
.30-1906-150	2,700	.323	.4	8½	7	10	2½
.30-1906-150	3,000	.328	.3	7	6½	8	1¾
.270 W. 130	3,160	.495	.28	5½	4½	5½	1¼

Begin your open-minded investigation of the .270, not with its 3,160 f. s. muzzle velocity, which is higher even than the .280 Ross affords us, nor with the 130 grains of bullet weight, which sounds pretty low, but with the fact that this 130-grain bullet has a ballistic coefficient of .495. The 130 grains of gilding metal and lead are confined within .278-inch diameter. The point of the bullet is exceedingly long and slender. In a list of 26 most popular and important modern cartridges, this bullet's ballistic coefficient is higher than that of any other except one. That one will be commented on further along.

As a result of this high coefficient, or rather of the shape it stands for and designates, the bullet has ranging ability plus. It skims across the 300-yard line at a fall angle of only 5½ minutes. It is dropping only 5 or 6 inches in going a hundred yards, out there. To miss a deer, under the belly, the animal would have to be 100 yards or so beyond, or about 400 yards away. To miss the deer over the back, by reason of trajectory, would be impossible. Between the gun muzzle and the 300-yard point this bullet rises only 4½ inches. That is its trajectory height at around 160 yards, and no deer measures so little from mid-line to backbone. The Winchester .270 has a point-blank deer range, therefore, of close to 400 yards, with sights set at 300 yards.

Observe the even more significant

"Time of flight" column—more significant because we can adjust sights for range; but for head-lead on moving game there is only guesswork. The .270 bullet, starting at high speed and retaining speed wonderfully well, arrives at 300 yards in .23 of a second, or, roughly, in one-fifth of a second. The 2,700 f. s. .30-06 load takes nearly twice as long, the .30-30 three times as long, and the .45-70 five times as long. A 40-mile-an-hour deer can jump less than 14 feet while this bullet is reaching 300 yards for him. And 14 feet distance, as is well known among the initiated, is within the compass of one buck jump. To hit a moving animal within the even cycle of one jump presents none of the complications of the two or more jumps involved in head-lead required for cartridges lower in the list.

Flight time and trajectory of .45-70 were divided by two when .30-30 performance was offered; but now comes the .270, dividing .30-30 deviations by three, or dividing .45-70 deviations by about seven. The comparison among them is not on the basis of

their velocities, which would be only 2½ to 1 between .45-70 and .270, but on those other factors we have been considering. It all sums up in deviation of bullet from line of aim, and sighting allowances that must be made to hit game in the field. Since 1890 to hit game has become seven times as easy, for the reason that these latest bullets stick closer to the straight and narrow path, and get out to where the work is to be done with less delay.

The figures of total fall at 300 yards, ranging from 9 feet down to about 1 foot, are not offered as exact. Doubtless figure sharks can find discrepancies in them. It is believed, however, that they represent actual conditions with fair approximation. They



Fig. 3. The type of holes made in pine by .270 Winchester expanding bullets. This was the 9th board. The dime placed in the picture for comparison is, of course, about .72 caliber, or 12 gauge, or just under three-fourths inch in diameter.

certainly go to show what a rifleman is up against in practical field shooting, and why it is easier to hit animal or target with one rifle than with another.

The shooter who thinks that head-lead is unimportant at the shorter ranges, or is a knack easily acquired, needs only practical woods experience to set him right. The hard fact is that even the best of us are never quite as sure on these difficult right-angle shots as we should like to be, or as we should be for humane and conservation reasons. We need every bit of "ballistic" help we can devise. It makes the sport cleaner and enhances our pride of success. On top of that, modern riflemen are woefully lacking in skill. Their command of rifles has gone back, while rifles have improved. Few among us now do enough shooting to know trajectory, or to "feel" head-lead on game. Allowances in sighting are something we should be glad to have made automatic, or the need eliminated.

When we pause to consider how the .270 Winchester—this junior edition of .280 Ross—reduces deviation from line of aim, we are reminded once again of the old, old story—the shot that hits is the shot that counts. Whether the .45-70 bullet would kill more reliably, or whether the .30-30 bullet kills well enough, are not at present points of importance. These other bullets are likely to miss game where .270 bullets are likely to hit it. *Once more, then, the shot that counts is the shot that hits.*

This matter of reduced deviation from line of aim, due to high initial velocity plus high ranging ability, may be called *practical accuracy*. Machine-rest accuracy is mere grouping ability. The .38-55 had that. The .30-06 has that also, in combination with a generous measure of this practical accuracy due to fairly high velocity. Groups made by .30-06 Springfield rifles at 200 yards average just about 4 inches in diameter. From what I have tried and observed of the .270 Winchester, its groups will average larger, perhaps 6 or 7 inches. The Model 54 Winchester rifle barrel is fairly thick, stiff, and without slots. Its boring and rifling is

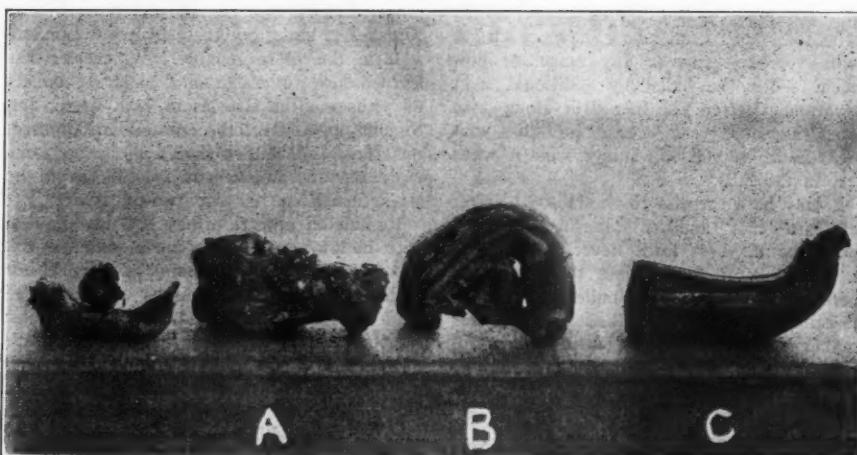


Fig. 2. Three bullets recovered from pine wood to show their mushrooming. A. A .270 Winchester expanding bullet in three pieces, after penetrating 11 inches. B. A Western Cartridge Lubaloy open point bullet, .270 caliber, penetration 14 inches. C. A Western Tool 7 mm. caliber bullet of 110 grains fired at 3,160 f. s. in 7 mm. rifle, after penetrating 17 inches of pine and 4 inches of earth

of standard type, and the bullets are of groove diameter. Extra well-cut barrels will group as small as Springfield barrels, but the average of over-the-counter rifles probably will do as is mentioned above.

On basis of machine-rest tests, the .30-06 Springfield is undoubtedly a little more accurate than the .270 Winchester. Despite this fact, the .270 is undoubtedly a little more accurate in the woods. It has more practical accuracy. It deviates less from line of aim.

The joys of shooting with 3,160 f. s. muzzle velocity backed up by ranging ability signified in a .495 ballistic coefficient, are further brought out in this second table:

Cartridge	F. S. Velocity and ft. lbs. Energy remaining at—						Trajectory midway of and "field" fall of bullets at—					
	Muzzle	100 yds.	200 yds.	300 yds.	400 yds.	500 yds.	600 yds.	200 yds.	300 yds.	400 yds.	500 yds.	600 yds.
	V. E.	V. E.	V. E.	V. E.	V. E.	V. E.	V. E.	T. F. T.	T. F. T.	F. T.	F. T.	F. T.
.270-130	2,880	2,505	2,250	1,970	1,525	1,475	1,175	2	0	4.5	0	8.2
	2,490	2,015	1,550	1,325	1,030	850	610	8	16	30	27	54
.270-145	2,800	2,510	2,250	2,050	1,820	1,625	1,475	2.6	0	5.8	3	9.7
	2,500	1,900	1,530	1,125	880	690	430	14	18	33	32	60
.270-100	3,360	2,950	2,610	2,285	2,000	1,760	1,540	2	0	5.2	3	11
	1,740	1,350	1,060	760	575	440	330	17	21	42	35	66
250 Sav. 87	3,000	2,657	2,340	1,975	1,720	1,495	1,290	2.5	0	6.8	5	12
	2,440	2,024	1,650	1,225	950	750	620	18	23	43	43	85
.30-06-150	2,700	2,465	2,244	1,950	1,695	1,500	1,350	2.9	0	7.1	10	14
	3,045	2,500	2,050	1,550	1,225	950	750	28	25	58	44	100
.30-06-150	3,000	2,760	2,500	2,175	1,920	1,700	1,500	2.3	0	5.7	3	11
	3,000	2,275	1,740	1,260	1,010	690	500	17	19	40	36	68
.30-06-110	3,500	3,050	2,725	2,360	1,950	1,675	1,425	1.8	0	4.5	0	9
								14	17	36	29	63

NOTE.—"Field" fall, or apparent remaining fall of bullets, has been estimated on basis of sights adjusted for ranges that give a maximum height of trajectory of $4\frac{1}{2}$ inches. This is 300 yards for .270 Winchester, but only about 185 yards for .30-06-150-2,700.

A lot of people have no idea how good a cartridge such as this .270 can be made—how much better its superior design can make it show up at the longer working ranges. Here we have this understudy for .280 Ross, with less weight of bullet, less weight of rifle by 12 ounces, and less recoil, developing 2,880 foot-pounds striking energy at the muzzle. Muzzle energy of the .250-3,000 Savage is only 1,740 foot-pounds. Energy of the .30-06 load, with which it compares directly—the one which speeds the 150-grain bullet at 3,000 f. s. muzzle velocity—is 3,045 foot-pounds.

Out at 300 yards, observe how the .270, by reason of the high ranging ability of its bullet, has retained its speed and energy much better than any of the other five cartridges.

It still is traveling at 2,610 f. s. The 3,000 f. s. .30-06 load has dropped away behind, to 2,175 f. s., and even the 3,500 f. s. .30-06 load has dropped to 2,360 f. s. At 300 yards the energy of the .270 is 1,970 foot-pounds; that of .30-06-150-3,000 has dropped to a mere 1,550. The others trail along several hundreds of pounds behind. Even at 200 yards the .270 has asserted its superiority in delivered force, for it has 2,250 foot-pounds, as compared with 2,050 foot-pounds for the above .30-06 load, or 1,740 for the 110-grain, 3,500 f. s. load. The figures in the table tell their own story. They talk most strongly in the 600-yard column, where the .270 bullet is shown with

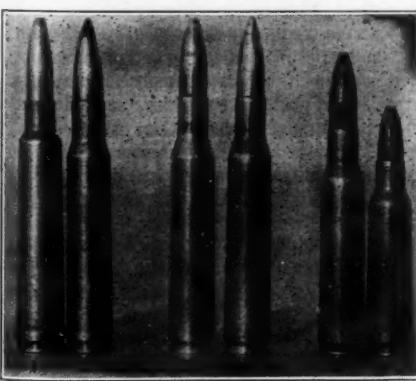


Fig. 4. And here is the .270 Winchester cartridge, with others, with which it must be compared. 1. .275 Holland & Holland Magnum. 2. .30-1906 Remington 150-gr. 3,000 f. s. velocity. 3. .270 Winchester, Western Lubaloy Open Point Bullet. 4. .270 Winchester W brand. 5. 7 mm. with Western Lubaloy 139 gr. open point expanding bullet. 6. .250 Savage with 100-gr. Western Lubaloy bullet

half again more energy than cartridges it started behind at the muzzle. The 600-yard time of flight of these six cartridges varies little. The .30-06-150-2,700 takes about one second, the .250 Savage about .9 second, and the others about .8 second. A deer might travel 50 to 60 feet while the bullets were in the air. Doubtless a "curve ball" and a magnet in the deer would be an aid in hitting in broadside running shots at this range.

The innovations in this ballistic table should be extremely useful as a basis for interesting comparison of the cartridges, as well as an aid to practical and efficient shooting in the game fields. The figures of remaining energy show what the cartridges are doing over across the canyon, where the

kills are made. The figures of remaining estimated bullet fall show how much to hold over the game at any range, or how much to lift the bullet by additional sight elevation. Better file this data along with your hunting-license certificate in your pocketbook, as you will surely want it when next in the hills.

It may be a surprise to the .30-06 believer to learn that another cartridge provides something his best loads never did. If so, he should recall those hints seen here and there to the effect that bullets of around .28-caliber are superior ballistically to others smaller or larger. The bullets, when of proper weight, form, and construction fly better. They lose energy less fast, are effected by wind less, and they do their appointed work when they reach the end of their path through the air.

I saw a big buck shot at 125 yards last fall with Winchester ammunition of .270 caliber. It was struck amidship, back of the heart. The entrance hole was the size of a quarter. The tunnel through the flesh was four or five inches, cleaned out. Through the opposite skin the hole was an inch and a half in diameter. No; he wasn't one of those freak deer that carry such a hole for a half mile. He speedily died.

Another buck was hit in the paunch, ranging forward. His belly skin was opened, dropping the paunch out. This buck went a quarter mile. A piece of the bullet weighing 72 grains was recovered under the skin of the brisket.

A bear was killed with three shots; the range 350 yards. One bullet all but took off a hind leg. The other two entered rear, ranging forward, and left no external trace whatever. Unfortunately we could not dig after these. The kill was made on the spot.

Another bear was hit just behind the ribs, ranging across and back. This bullet struck high, and tunneled through the backbone, and on out. By pulling up the fur a little you could see right through the 1- or 2-inch hole.

A buck was struck in the rear part of the neck, as it was bounding toward the hunter. The bullet crossed through the thick muscles and entered the opposite shoulder, where it failed to break the bone, although stripping the meat off the entire inner surface of the shoulder blade, and the jacket off itself. The largest piece recovered weighed 55 grains.

Lots of small stuff was observed killed—woodchucks, semi-wild dogs of the "yaller" persuasion, and in one instance a shipment of steers that escaped to the woods and defied farmer methods of rounding up. A steer's head will not stop a .270 bullet ordinarily.

The best conclusion seems to be that Winchester ammunition, with protected-point expanding bullets, gives about 10 inches of penetration in big bones and firm muscles and gristle. Where the bullet slips between layers or through body cavities, the penetration of course is much more. The penetration is greater at 300 yards than at 50 yards

range, and likewise the mushrooming of the Winchester bullet out there is, in my opinion, a little the more reliable. Winchester has learned how to design and construct bullets to withstand the stresses of high speed, and to hold together in the animals encountered, but their .270 bullet should be given some more of the same treatment. It should be strengthened in its rear two-thirds.

Remington now furnishes .270 ammunition with hollow-point, gilding-metal jacketed Express bullets giving standard Winchester ballistics. Western furnishes the cartridge loaded with its famous Lubaloy open-point bullets. Peters furnishes it with that firm's "protected-point" expanding bullet, which is a good one, as I happen to have learned in the woods. It is probable that Remington and Western bullets are both more strongly constructed, and will break up less completely, than Winchester bullets; which observation is offered as another matter of experience.

The only .30-caliber bullet equaling the standard 130-grain .270 Winchester bullet in ballistic efficiency is the Remington 180-grain bronze-point, which has a coefficient of .554. Fired in .30-06, this good bullet can be given only about 2,725 f. s. velocity, or more than 400 f. s. less than the .270. Nor will it gain a great deal on the latter, despite its sustained energy. Our broadside deer can move 20 feet while that bullet is coming 300 yards. The same .30-caliber bullet, or others like it, can be fired in .300 Magnum at a velocity close to 3,000 f. s., when it will outrank the .270 in all points. Unless the rifle weight is made very heavy, however, recoil is doubled, and another factor in practical field accuracy enters the picture. It is none other than our old friend "deviation from line of aim" in a new guise. Or, shall we say for the third time, the shot that hits is the shot that counts.

Unpracticed shooters, which term includes everyone who shoots less than 1,000 to 5,000 shots a year, invariably give a better account of themselves on game with light, easily handled rifles, with light recoil. Heavy rifles, using heavy, larger-caliber cartridges, may kill better when they hit; but in average hands the present Winchester .270 pretty nearly strikes the balance between a rifle that can be carried in comfort and aimed quickly, on the one hand, and delivered striking force, on the other. Some sacrifice of practical field accuracy must be made if any heavier cartridge is used, for either the recoil relation or the gun weight must be raised. Such considerations, of course, do not apply to the hardened rifleman.

Is the .270 Winchester a moose and big-bear gun? Well, in classical language, what's the idea in bringing that up? I wouldn't run from the biggest Brownie on Unimak Island or adjacent ranges if there were nothing but a .270 along, as I saw a man running from an ordinary wildcat this last winter. But there is too much talk on the basis of moose and big bear, and not enough on the basis of deer and small bear, sheep and caribou and coyotes. So many

more of us get so many more shots at the medium and smaller game.

I like to think of the .270 as the caliber that adds another hundred yards to the 200 to which reliable killing range had been lengthened by good .30-06 loads beyond the original 100 yards of .45-70 and .38-55 days.

Faults of the .270 cartridge are that the bullet is so light there will always be a question in the minds of some as to its effectiveness. Ten inches of game penetration is hardly as much as they expect. There is no wide variety of bullets available. The shape of the case is not particularly efficient in burning powder, with the result that to get standard velocity, pressures are at maximum. The Western Tool bullet of 145 grains has such long bearing and such a hard jacket that it sets up resistance, and prevents its being driven at the expected velocity of 3,000 f. s.

Faults of the Winchester Model 54 rifle are annoying rather than serious. The action is smooth and solid, but in three rifles I have owned has so much "slop" between bolt parts as to make fine trigger adjustment impracticable. The bolt handle lifts too high. It must be sawed off and welded on lower for scope sight use. The safety is of the antique center-leaf type, instead of the modern side type. The stock is a varnished affair, with a very small butt plate, too-low comb, and misplaced pistol grip. Why couldn't it have been right, and the safety, too?

In at least two rifles coming to my notice the boring of barrels has been off dimension and uneven. Winchester can make good barrels—a fact no one can question—and should not offer poor ones. The Winchester Staynless steel barrel is well worth its extra cost, although now that Remington Kleanbore ammunition is available this is not so important. Winchester will shortly have rustless cartridges available.

Niedner is prepared to furnish barrels for .270, cut to extra close and accurate dimensions. This is important not only to shooters who want the last fraction of an inch in grouping, but because it enables one to have a .270-caliber rifle on a Remington, Springfield, Mauser, or other action.

The Western Cartridge Co.'s 130-grain .270 bullet is of boat-tail type. I have not tried it; but if it proves finely accurate its extra 50 to 75 f. s. velocity, sustained at the longer ranges even better than usual, would recommend it. Winchester bullets do not look it, but have jackets of gilding metal, coated over lightly with tin. They are non-fouling.

As a hand-loading proposition, there is nothing whatever the matter with the .270 Winchester, except its rather odd caliber, for which there is no great variety of bullets available. The rifle chambers are fairly close. Ideal advises sizing the bullet .280-inch for the .278-inch groove diameter. Belding & Mull advise .281-inch. Six or eight cast bullets are available, in weights of 111, 125, 136 and 138 grains. All the

(Continued on Page 22)

The Schmitt Full-Length Resizing Tool

By O. B. Emswiler

EXCEPT in the case of cartridges used in guns with very close chambers, full-length resizing eventually becomes necessary with shells of any caliber. Many of us have reloaded our shells from one to five times, and had them function fairly well; but even with this small number of reloadings they are never sure in rapid fire, nor are they to be trusted in hunting. There are many clubs and groups of shooters today who have thousands of .30-06 and .30-40 cases lying idle, which would be as good as new could they be resized properly, with the assurance that they would fit any of their individual guns as readily as would new cases.

The matter of proper tools for the full-length resizing of long, heavy cartridge cases has long been a problem with the shooter. The old system of forcing the shell into a small die with a mallet or with the aid of a vise was slow and awkward, and did a very poor job at best. The bench tools available up to the present time, with their many accessories and high cost, left much to be desired.

Mr. Schmitt, who is thoroughly familiar with the problems of the shooter, set about designing a tool to meet the present-day need. The result far exceeded the expectations; and we now have available a tool that is simple in operation and adjustment, positive in action and accurate to the nth degree. Yes, indeed; and with the two motions of the lever (up and down), it full-length resizes the case, removes the old primer, expands the neck and seats the new primer. All of these operations are accomplished with the two motions of the lever. The tool is provided with an automatic primer feed that is truly automatic.

Experiment proved that a machine of less than 50 pounds in weight would, in operation, spring from six to eight one-thousandths of an inch at the end of the stroke. To overcome any spring in this new tool, the frame was provided with three large ribs at the back; and the complete tool has a total weight of about 60 pounds. It will resize with a head-space tolerance of less than one-thousandth of an inch, which is remarkable considering the amount of pressure required to force a .30-06 case into the die.

The importance of head space in full-length resizing should never be underestimated, especially with rimless cases such as the .30-06. The chambering of the case is governed by the length of the shell between the shoulder and the head. A shell too long in this dimension would prevent closing of the bolt. One too short would allow too much space between the head of the case and the face of the bolt, and would be apt to cause a misfire, and possibly a ruptured case. The resizing chamber of the new Schmitt tool is adjustable for this head space by screwing in or out, as re-

quired; and is secured in adjustment by a double lock nut. It can be easily adjusted to standard length, or to the individual gun.

Full-length resizing dies are made in two sizes—Nos. 1 and 2. Taking 1925 National Match ammunition as an example, the unfired case measures on the average from .436 to .437 inch at the shoulder, and from .467 to .468 inch at the base. Fifty fired 1925 cases, taken at random from a lot of 2,000 picked up at Camp Perry, measured, on an average, .443 inch at the shoulder and .470 inch at the base—an average expansion in the brass of .006 inch at the shoulder and .003 inch at the base, when fired in National Match rifles. No. 1 die resizes to normal size. No. 2 die resizes cases to give a clearance of about .003 inch at the shoulder and about .002 inch at the base in the average National Match chamber. This is a very practical size, functioning smoothly through the gun, and with a minimum working of the brass.

The neck-expanding plug expands the neck

to normal size, is interchangeable, and may be had in any size desired. The primer feed mechanism is designed to handle any size of primer without changing the primer tube or slide; merely required a slight adjustment of the centering screws. The recapping pin is adjustable for seating depth of primers. The tool is operated in the vertical position and on the straight-line principle, a powerful leverage being secured through a toggle action.

In general, the tool is strong and rugged, and is designed for heavy duty, long service and speed of operation. The castings are of the highest quality gray iron. The die is of a specially treated nickel-steel. The extractor and expanding plugs are of tool steel, hardened and tempered. All other working parts are of machine steel. The swinging head which holds the die is automatically pushed clear of the extractor, and held in a convenient position for inserting and removing cases. This feature eliminates the necessity of lifting the die the full length of the case, and holds the operating arc of the lever to only about 35 degrees. The position of the lever, which operates in a plane making an angle of 45 degrees with the face of the tool, allows the operator to work directly in front of the machine, in the sitting position. This position of the lever is the natural working position of the arm, and gives the greatest ease of operation. The primer feed-actuating mechanism is designed on the yielding principle, to prevent breakage of parts.

Adjustments can easily be made, as all movements of the tool are visible except where the primers feed into the slide, which can be viewed by removing the extractor. The primer tube, which holds approximately 125 primers, is located at the back of the tool.

Now that the reader is somewhat familiar with the operation of the tool, we are ready to follow the operation of resizing a case. After filling the primer tube, which is speedily done

by the use of the primer feed tray, we lubricate the case, raise the lever halfway, insert the case into the die with the left hand, push the die with case into the extractor and bring the lever down to the stop. We then raise the lever to full height and remove the case. The job is now done. The case has been full-length resized, de- and re-capped, and the neck expanded by these two movements of the lever, all done in about the time required to neck-resize the case in the ordinary type of tool.

Another very desirable feature is the ease and speed with which changes can be made from the resizing to the bullet-seating dies, or vice versa. You simply pull the pin, remove the resizing die, and replace with the bullet-seating die. Screw the knurled plug

(Continued on Page 22)



A Lightning-Fast Firing Mechanism Recently Developed in Sweden

By Capt. H. Victorin

DURING 1924 the results of certain very interesting scientific experiments by the United States Ordnance Department pertaining to speeding up the firing mechanism of the Springfield rifle were published in THE AMERICAN RIFLEMAN.

The results achieved were, however, probably considered rather in the light of an improvement than as a definite solution of the problem. The highest degree of efficiency of a firing mechanism in guns or pistols made for contest shooting must satisfy the following three conditions:

1. The trigger must function with the ease of a set trigger;
2. The trigger must be in direct action with the firing pin, or hammer; and
3. There must be a minimum of weight in all moving parts.

The first condition is a problem long ago solved, and is mentioned only as its requirements must be fulfilled by the ideal firing mechanism. In all mechanisms now in use the condition 2 excludes the use of a set trigger because of the heavy pressure of the spring acting upon the firing pin or hammer, and that is why the time of action of these mechanisms can not be reduced as much as desired. Minimum of weight (3) is achieved by using a firing pin made of duraluminum, or some similar alloy.

The problem has now been completely solved by two Swedish amateur gunsmiths and well-known expert shots, J. E. and J. G. Glans, of Stockholm. Their invention has been in use since last summer and has proved a brilliant success. It covers all above-mentioned conditions. J. G. Glans was a member of the Swedish team at Rheims in 1924, doctoring all our rifles. Returning home, when the members of the team were discussing their somber lessons—especially regarding the far too rude equipment—our gun doctor asked some hundred questions, retired to a corner for a hour, and solved the problem. Because of lack of means the first new gun was not ready until last spring.

According to the letters patent, United States patent No. 1,632,892, the firing pin is in direct contact with the cartridge before

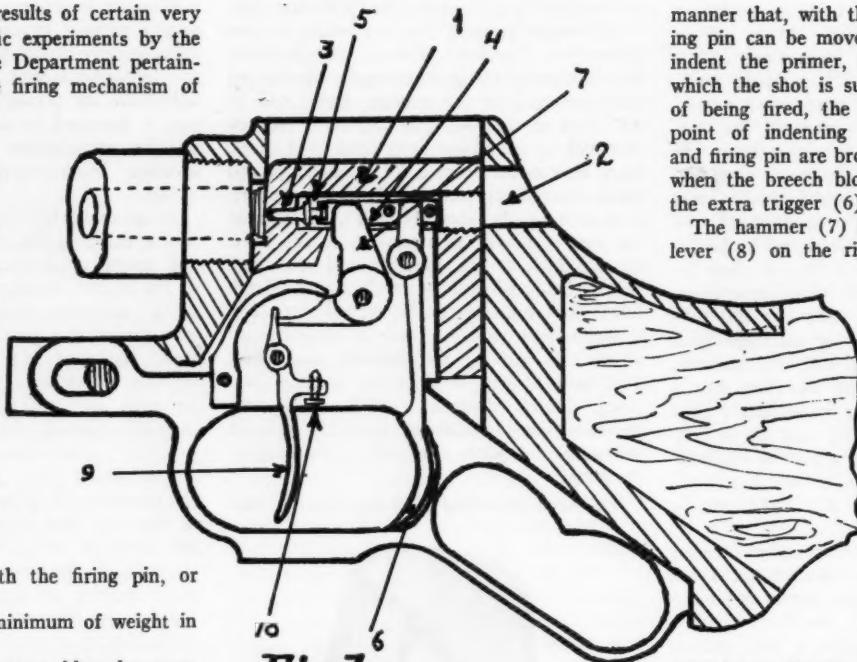


Fig 1

the trigger pull takes place, and is so light that the blow from a hammer released with the ease of the usual set trigger is enough to fire the cartridge.

Referring to Fig. 1, the breech block (1) slides vertically in the receiver. When the breech is open a cartridge may be inserted through a hole (2) in the receiver, said hole also permitting the inserting of a cleaning

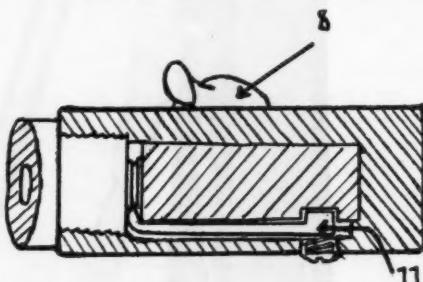


Fig 2

rod from the rear. The extraordinarily light firing pin (3) is combined with a shaft (4), connected to the firing pin at 5 in such

manner that, with the breech closed, the firing pin can be moved forward sufficiently to indent the primer, as shown in Fig. 1, in which the shot is supposed to be in the act of being fired, the firing pin being on the point of indenting the primer. The shaft and firing pin are brought into proper position when the breech block is closed by pressing the extra trigger (6).

The hammer (7) is cocked by means of a lever (8) on the right side of the receiver when the breech block has been closed. This is a necessary precaution, as the jerk on the lever might fire the shot exactly when the breech block slides into position. The trigger proper (9) may be adjusted as convenient by the screw (10).

Special care has been taken about the construction of a good extractor (11, Fig. 2). This extractor is pressed into the groove in the cartridge head by a spring, and then slides backward when the breech block is forced down by the lever. Of course, every necessary safeguard is provided for against misfire, etc.

When the trigger is pulled the shot is fired with lightning speed. A very good firing mechanism has been invented by the Danish international marksman and gunsmith, N. Larsen, which invention some members of the American team had opportunity to see at Rome last year. It is, however, very probable that the mechanism of Mr. Glans acts in not more than half the time. As the moving parts of the Swedish invention weigh a minimum, the blow on the firing pin is quite extraordinarily light. That is why it is to be supposed that this new invention is of special value for the small bore and the pistol. The trial gun is, however, built for .30-06 American ammunition, and has proved to be above praise. Especially the pistol-shot ought to hail this invention with enthusiasm. His tricky little weapon is always playing hide and seek with the bull's-eye, and is very sensitive to every touch on the trigger. Even the impact of the hammer makes the pistol jump, all of which operates most efficiently to scatter the bullets round the outskirts of the target.

Natural Running Deer and Bear Target Manually Operated

By W. C. Gardner

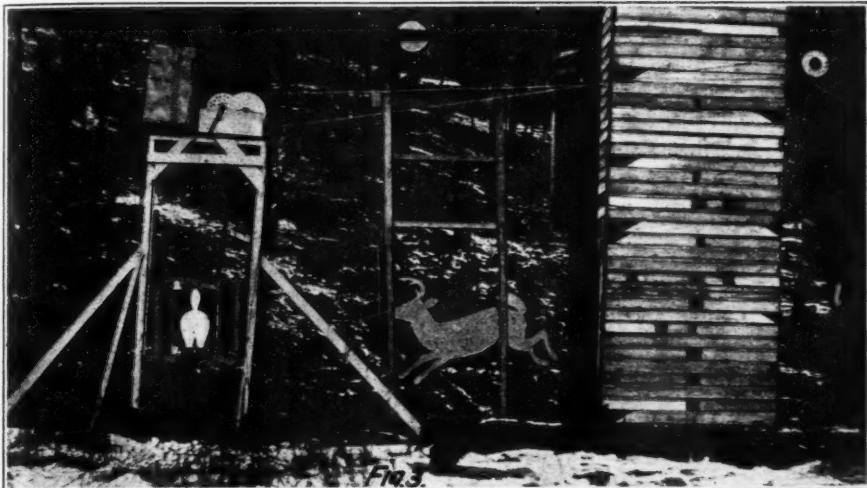
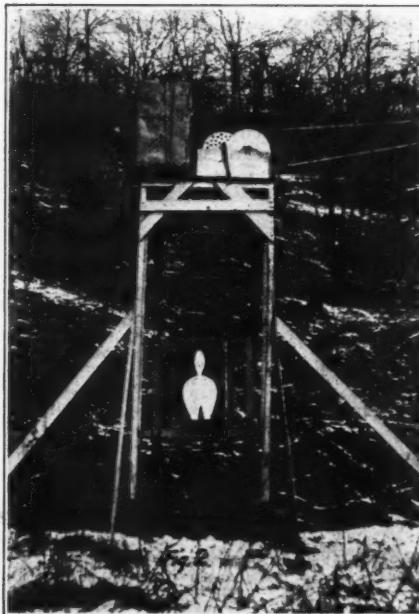


Fig. 3.



IN ORDER that our rifle range may be made more complete and attractive to our large-game hunters, I have designed and tried out with wonderful success a mechanically operated running-deer and bear target, which has created considerable interest, causing larger attendance at our shoots. It is obvious that this target will net great returns in that it means better marksmanship and less crippled game escaping and so dying a lingering death.

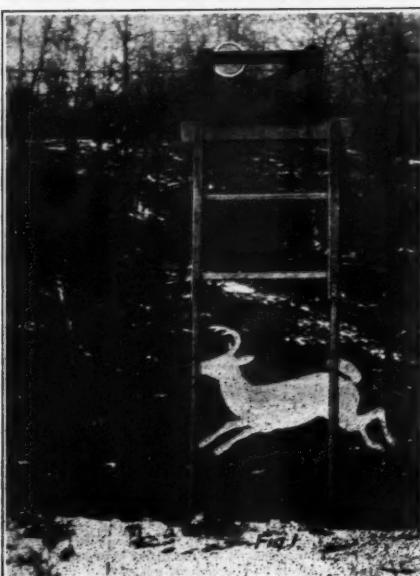
This target operates on a trolley wire or steel cable $\frac{3}{8}$ inch in diameter, 15 feet from the ground and 220 feet between supports. The distance from the shooting position to the target is about 85 yards. The jumps are secured by means of a pinion mounted on the trolley wheel, which operates a gear with an arm attached and connected to the target by means of a small wire, giving a rise-and-dropping movement to the target. One complete revolution of the arm causes the deer to make a jump of 23 feet, regardless of the speed at which the target is driven. When using the bear target it is necessary to change to smaller diameter trolley wheels, which reduce the length of the jump.

The mechanism which forms the frame that supports the target is made from white-pine strips reinforced at the corners by means of a 1/16-inch sheet-steel plate to carry the load. To the frame are attached strips at each end, cross membered to resist end thrust, as shown in Fig. 1. To these supports are bolted strips forming a slot in which the target operates. These supports were made in short lengths, as it was at first thought that their life would be very short; but after two years' operation it was found that this provision was unnecessary, as renewal was required only once. The targets are made life-size and in a running position, and from the ordinary beaver board or built-up paper slabs.

The power for the operation of this target is supplied by means of a bicycle, the rear wheel rim being used as a sheave, upon which runs a $\frac{3}{8}$ -inch diameter sash cord operating through a sheave wheel mounted on the tree supporting the large cable, as shown in Fig. 3. This wheel is connected,



Fig. 4



by means of a shaft, to another sheave wheel which drives an endless wire fastened to the target frame, as is also shown in Fig. 3. Fig. 4 shows the bicycle and the alteration necessary to make it suitable for the purpose. The speed of operation is controlled entirely by the bicycle operator, and can be varied at will. A bicycle that is ready for scrap will be most suitable for this work and also reduce expense.

Fig. 2 shows the rear end of a deer moving in an up-and-down direction and in synchronism with the running target, this also making a very fine target which requires considerable skill to hit. The operation of this target is accomplished by means of a gear reduction shown mounted in a box on top of the frame, as illustrated in Fig. 2, and driven from a sheave wheel mounted on the shaft shown attached to the tree (Fig. 3) and connected to the bicycle by a $\frac{3}{8}$ -inch sash cord.

Fig. 3 shows an enclosure for storing the bicycle and mechanism when not in use, and which is built of very cheap secondhand lumber. This extra lumber being on hand, it was utilized for this purpose. This expense can be eliminated if desirable by using the range building for storing.

The complete cost of this equipment can be held to a minimum provided the necessary material can be purchased at as near cost as possible and the installation work is done by the club members.

In conclusion I might add that we were very fortunate in finding two trees suitable for supporting the large cable; but it also may be said that this worked to a disadvantage as well, due to the fact that the length of target travel was predetermined. However, supports can be very cheaply installed by using pipe or scrapped telephone poles properly guyed. The span should not be greater than about 250 feet. This distance will be found to be the most efficient, as it affords one ample time to empty a rifle shooting six shots.

Deviation from Line of Aim

(Continued from Page 18)

regular jacketed bullets can be used for reduced charges, as they are of full groove diameter. Tools are supplied by all makers

The .270 has arrived. It is not another semi-freak—here today and gone tomorrow.

It is without question today's best deer cartridge, and sheep and coyote cartridge, because it delivers killing energy at long range, and has greater practical accuracy than usual.

tempted by any manufacturer of loading tools. The bullet seater is adjustable for depth of bullet, and for crimp.

GOOD LOADS FOR .270 WINCHESTER—FULL POWER				
Bullet	F. S. velocity	Powder	Charge, grains	Remarks
130-grain J.	3,160	No. 15½	55	Pressure high.
130-grain J.	3,035	No. 15½	53.5	Better for reloading.
130-grain J.	3,000	Hi Vel	44.5	Pressure 53,000.
130-grain J.	2,945	No. 1147	51.5	
130-grain J.	3,040	No. 300	52.2	Estimated.
130-grain J.	3,160	No. 300	53.7	Estimated.
130-grain J.	2,585	No. 17½	44	
130-grain J.	2,920	No. 17½	50	17½ burns too fast.
145-grain J.	2,675	No. 17½	47	
145-grain J.	2,600	No. 15½	47.6	
145-grain J.	2,855	No. 15½	51.7	
100-grain J.	2,640	No. 15½	45	
100-grain J.	3,360	No. 15½	58	

REDUCED CHARGES FOR .270 WINCHESTER				
Bullet	F. S. velocity	Powder	Charge, grains	Remarks
111-grain cast	1,000	No. 5	5	Grouse and squirrel load.
111-grain cast	1,200	No. 80	10	Rabbit load, 75-100 yards.
135-grain cast	1,250	No. 80	13	General practice load.
135-grain GK	1,600	No. 80	18	200-yard load.
130-grain J.	1,675	No. 80	20	100-200 target load.
130-grain J.	1,950	No. 1204	24	
130-grain J.	2,200	Lightning	23	
135-grain GK	1,750	Lightning	19	Mid-range.
135-grain cast	1,450	Bulk Shtgn.	14	Cheapest load of powder.
135-grain GK	2,000	No. 18	26	Good coyote medicine.
135-grain GK	1,600	Unique	12	
135-grain cast	1,250	Unique	8	

HELPFUL INFORMATION FROM REMINGTON

THE .22 Remington Autoloading Cartridge and the .22 Winchester Autoloading Cartridge will not interchange. The Remington Autoloading Cartridge is adapted for use only in the M/16 Remington .22 Autoloading Rifle; and the .22 Winchester Autoloading Cartridge will work satisfactorily only in the Model 1903 Winchester Automatic Rifle. Many persons have been misled by the fact that these cartridges are similar in appearance and have tried to change them with unsatisfactory results. Be sure to get that point.

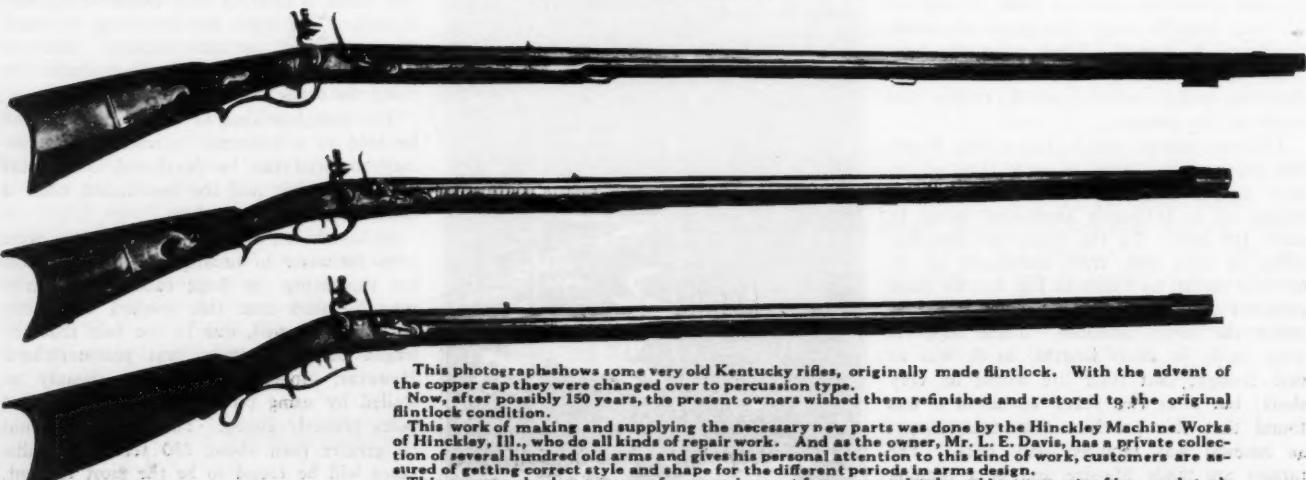
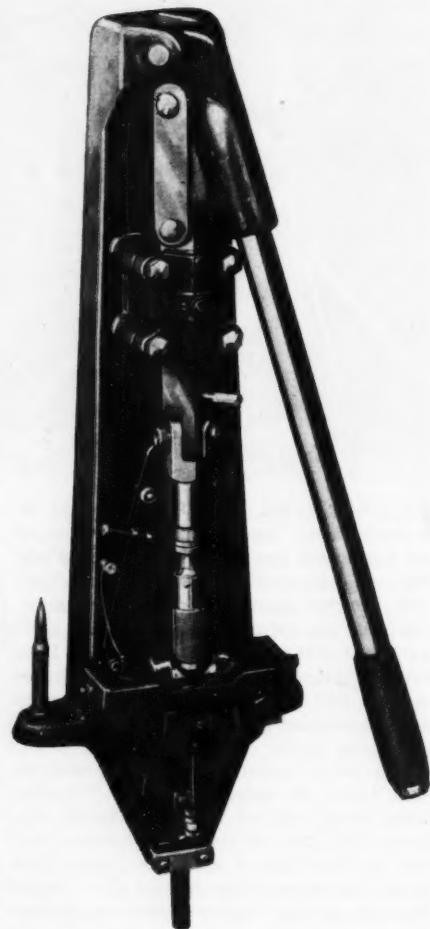
The .22 W. R. F. and .22 Remington Special Cartridges of Remington make are now packed identical and will be packed as one cartridge, two sizes being indicated on the package. This cartridge is primarily adapted for use in the Winchester 1890 Repeating Rifle, the Remington Model 12CS, as well as several models of Colt's Revolvers.

The Schmitt Full-Length Resizing Tool

(Continued from Page 19)

into the plunger bar, which makes the primer feed mechanism inactive and prevents the re-capping pin from hitting the primer. All this can be done in about 30 seconds, without disturbing the adjustments of the dies.

The seating tool supports the case fully, and is held in position by spring tension, insuring alignment of case and bullet. The bullet-seating plug slides in the die and pushes the bullet into the case, not the case onto the bullet. The seater is very accurately machined, seven reamers being used to complete the operation. These reamers ream the bullet chamber, neck shoulder and body of the chamber at the same operation, thus insuring that all parts of the chamber are concentric with each other. It is the most accurate job of chambering ever at-



This photograph shows some very old Kentucky rifles, originally made flintlock. With the advent of the copper cap they were changed over to percussion type.

Now, after possibly 150 years, the present owners wished them refinished and restored to the original flintlock condition.

This work of making and supplying the necessary new parts was done by the Hinckley Machine Works of Hinckley, Ill., who do all kinds of repair work. And as the owner, Mr. L. E. Davis, has a private collection of several hundred old arms and gives his personal attention to this kind of work, customers are assured of getting correct style and shape for the different periods in arms design.

This concern also has a process for removing rust from guns, pistols and instruments of iron and steel. No matter how badly rusted, it will remove every particle to the very bottom of the pits and pores without the slightest damage to the sound metal.



Conducted by C. B. Lister

The Team Sails

CARRYING with them the good wishes of the organized riflemen of America, the United States International Free Rifle Team sailed from New York on the steamer *New Amsterdam* of the Holland-American line, on Saturday, June 23. The team as it finally shoved off consisted of the following:

Team Captain:

Col. D. C. McDougal, U. S. Marine Corps.
Team Coaches:

Comdr. C. T. Osburn, U. S. Navy,
Maj. Harry B. Smith, U. S. Marine Corps,
Gy. Sgt. E. J. Blade, U. S. Marine Corps.

Team Adjutant:

Capt. Mark M. Serrem, Ord. Dept.,
U. S. A.

Shooting Members:

Lieut. Paul M. Martin, U. S. Cavalry,
Lieut. Sidney R. Hinds, U. S. Infantry,
William L. Bruce, Cheyenne, Wyo.,
Laurence Nuesslein, Washington, D. C.,
M. W. Dinwiddie, University of Virginia,
Gy. Sgt. Morris Fisher, U. S. Marine Corps,
Corpl. Paul E. Woods, U. S. Marine Corps,
Capt. Lloyd S. Spooner, U. S. Infantry,
Capt. John H. Knuebel, U. S. Infantry,
Sgt. R. F. Seitzinger, U. S. Marine Corps.

The team was expected to land at Rotterdam on July 2. They are being comfortably quartered in one of the good hotels at The Hague, and will immediately start practice for the International Matches on the International Match Range. The Dutch are handling the range facilities in a manner a little more satisfactory to the American Team than they have been handled in other countries—that is, instead of having to arrange for some special range for practice purposes and then going to an entirely new range for the actual firing of the match, the teams this year are to be assigned practice targets on the same range on which the International Matches are fired. According to the information received prior to the sailing of the team, the International Free Rifle Team Match, which is the event of primary interest to our riflemen, will be fired on July 23, 24, and 25, one position being fired each day.

The team which represents the United States in the fight for the Argentina Cup this year is the best equipped which we have ever sent to Europe. No expense has been spared by the National Rifle Association in the effort to obtain equipment and shooters of the best possible type.

The Ordnance Department has co-operated splendidly, and if this year's team brings back to this country the Argentina Cup the shooters of the United States will owe another debt of gratitude to the Army Ordnance Department. The Marine Corps has as usual done everything in its power to provide training facilities at Quantico which would be efficient in operation and comfortable for the team members. By providing for Sergeant Blade to remain on duty at Quantico and to go to Europe with the team as a coach assurance has been given that any modifications which may be necessary in the fitting of stocks, the repair of set triggers or of sights, or the hundred and one little refinements that mean added points in a shooting match, will be adequately taken care of. Sergeant Blade is recognized as one of the best armorers in this country.

Through the generosity of William Randolph Hearst in providing for the necessary expenses of the civilian members of the team it has been possible to assemble the squad almost two months in advance of the date of sailing. The men have had an opportunity to become thoroughly acquainted with the Martini actions and with one another's weak points and strong points. It has been possible to coach the men in the positions in which they were weakest. As a result, team members like Bruce, who last year hung up a new world's record in the prone position, but who was not particularly strong in the kneeling and standing positions, have been enabled to improve their weak points so as to make a respectable showing over the entire course.

Several interesting side lights have been developed during the training of the team. It was discovered, for instance, that two veterans—Bruce and Fisher—had a certain amount of eye trouble which when corrected by shooting glasses enabled them to eliminate the occasional bad string which had been bothering them. These men have been shooting for years, but it was not until the careful training and study of each shooter was undertaken this year that they were shown the advisability of wearing shooting glasses. In other cases it has been possible to improve the shooting position of different members of the team and even to improve the scores of some of the men by such a simple expedient as breaking them of the habit of shooting slowly and causing them to

SCHEDULE—COMING EVENTS

National Matches (High-Power, Small-Bore, and Pistol), August 26 to September 16, Camp Perry, Ohio.

Eastern Small-Bore Tournament (Small-Bore), June 30 to July 4, Sea Girt, N. J.

United Services of New England Matches, Wakefield, Mass., August 7-14.

Illinois State Rifle Association and Chicago Rifle Association Match, Ft. Sheridan, Ill. Army Qualification Course A, July 1. Small-Bore Wimbledon, July 4. Long-Range (1,000 yards) Championship and Re-Entry Pistol, July 4. State Shoot and Civilian Team Selection for National Matches (consisting of the Wrigley, Leonard, Herald, Tribune and Black Trophy Matches). Second Service Pistol Championship and Foreman Pistol Team Match, July 14-15. Independent Dewar, I. S. R. A. 100-yard Team Match, July 22. I. S. R. A. 300-Meter Match, August 5. I. S. R. A. Army Course A, August 12.

Fort Pitt Rifle Club, Pittsburgh, Pa. (To get to range: Any street car running to Wilkinsburg will transfer you to a Verona car. Get off at Laketon Road and walk up Laketon Road to Graham Boulevard, turn left on road to Wilkinsburg Gun Club, then downhill to range. Pennsylvania Railroad will place you within one square of Verona car, or take taxi from station direct to grounds.) 100-Yard Burglar (Pistol) Match, July 7. 300-Yard Prone (.30-caliber) Match, July 14. Running-Deer Match, July 14. Members' Season Re-Entry Rifle and Pistol Matches, July 21. 200-Yard Kneeling Match, July 28. 200-Yard S. B. Wimbledon, August 4. Fort Pitt Picnic, August 11.

Third Annual Oklahoma State Rifle Association Matches (small-bore, High-power and Pistol), Okmulgee, Okla., June 3-4.

Northwest Regional Matches and W. S. R. A. Tournament, Fort Lewis, Wash., August 13-19.

speed up their 10-shot strings as much as three or four times as fast as they had been accustomed to shooting them in the past.

It is, of course, too early to predict what the ultimate outcome may be this year. We have already experienced too frequently the uncanny ability of the Swiss to improve scores which seemed to be unbeatable. Last year we had the spectacle of a dark horse in the form of the Swedish Team coming from behind to outpoint the Americans. All that can be said now is that this year's team has better equipment and is better trained in teamwork than any previous aggregation of American riflemen sent abroad. It is splendidly officered, and is made up of men who, with one exception, have all proven themselves to be unshakable in international competition.

The August issue of THE AMERICAN RIFLEMAN will tell the story as to the outcome of their efforts.

Cablegrams of encouragement which members of the Association may desire to send the team prior to the firing of the match should be addressed to Col. D. C. McDougal, Team Captain, United States Free Rifle Team, Ockenburgh, Loosduinen Range, Holland. Such cables will mean much to the men who are representing you in the hardest competitive test riflemen are called upon to meet.

AUTOMATIC RIFLE MATCH AT CAMP PERRY

THIS year for the first time the subject of automatic rifles of the light Browning type will be taken up in the Small-Arms Firing School at the National Matches. In

order to permit the shooters to put to a practical test what they may learn in the school, a special match will be added to the program, to be fired on the 600-yard range on Tuesday, September 4. The conditions of the match are being drafted by the War Department, and the competition will be added to the regular N. R. A. schedule. As in the case of the Chemical Warfare Match, the necessary equipment will be issued to the competitors at the firing line.

This innovation is being undertaken in line with the general policy of the National Rifle Association to keep abreast of developments in small-arms firing, and in view of the generally accepted belief that the infantry soldier of the future will in all probability be armed with a semi-automatic shoulder rifle of some description.

RESERVE OFFICERS NOT ELIGIBLE FOR CIVILIAN TEAMS

COL. HU B. MYERS, the Executive Officer of the National Matches this year, has requested that we publish information in regard to the decision that Reserve Officers will not be eligible as members of civilian teams at the National Matches this year. A man can have but one status. He is in the Regular Service, in the National Guard, in the Reserve Corps, or he is a civilian. R. O. T. C. and C. M. T. C. students not being a part of the Reserve Corps are eligible for positions on civilian teams under the same conditions as govern the selection of other civilians for places on their State teams under the supervision of The Adjutant General of each State.

RESERVE OFFICERS TO HAVE TEAM AT NATIONAL MATCHES

PLANS are being worked out for the sending of a Reserve Officers' Team to the National Matches this year. Each Corps Area Commander is being requested to select not less than three candidates for the team from among the Reserve Officers in his corps area, such selection to be based on scores made in whatever type of competition the Corps Area Commander may decide upon. The names of the selected candidates will be forwarded to the War Department, where the final selection of the team will be made. Selection of the team captain and team coach will also be made in the War Department. It is contemplated that the headquarters of the Reserve Officers' Association in Washington will be consulted by the War Department in making the final selection of the team and its officials.

A CORRECTION

THE article by C. B. Lister on "The International Tryouts and Team Selection," which appeared in the June issue of the RIFLEMAN, carried a list of corps area medal winners in the Preliminary Tryouts. It now appears that all scores were not

tabulated in the Third and Sixth Areas, and the following corrections are published for the information of all concerned. Medals are being awarded as per the corrected scores below:

3RD CORPS AREA	
Silver medal, Lieut. M. W. Dodson	499
Bronze medal, Lieut. Aylwyn P. Williams	499
Bronze medal, Mr. Wm. H. Tillman	456

6TH CORPS AREA	
Silver medal, Mr. C. E. Nordhus	518
Bronze medal, Mr. S. D. Monahan	499
Bronze medal, Mr. F. Johansen	486

DAVENPORT HOLDS THIRD MONTHLY SHOOT

ON JUNE 3 the Davenport Shooting Association held their third monthly shoot on the 200-yard range at Forest Park. The scores were:

HONOR TARGET—POSSIBLE 75 POINTS— $\frac{1}{4}$ -INCH RINGS	
Wallie Lundberg	67
Roy Vosberg	66
O. J. Rohlf	66
C. F. Denkman	66
Julius Muhl	64
Emil Berg	63
Ed. Muhl	63
E. L. Grundmeier	61
Frank Berg	60
W. J. Bleuer	59

DAVENPORT TARGET—POSSIBLE 25— $\frac{1}{4}$ -INCH RINGS (ONLY ONE SHOT)	
Ed. Muhl	25
C. Jansen	24
C. F. Denkman	23
H. L. Frazier	23
E. Rutenbeck	22
E. Grundmeier	22
Wm. Muhl	21
G. Muhl	21
Frank Berg	21
R. Vosberg	21
J. Muhl	20

PEOPLE'S TARGET—POSSIBLE 75— $\frac{1}{4}$ -INCH RINGS	
Wm. Muhl	71
Emil Berg	71
C. Jansen	70
G. Muhl	70
C. F. Denkman	70
Julius Muhl	56
C. F. Denkman	56
E. L. Grundmeier	69
Frank Berg	66
J. Muhl	65
E. Rutenbeck	65

MAN TARGET—POSSIBLE 60 LINES— $\frac{1}{4}$ -INCH LINES	
Gus Muhl	58
Ed. Muhl	58
C. Jansen	57
Wm. Muhl	56
C. F. Denkman	56
Julius Muhl	56
C. F. Denkman	56
E. L. Grundmeier	55
O. J. Rohlf	55
H. L. Frazier	55
R. Lundberg	54

FIVE-SHOT MATCH—POSSIBLE 125— $\frac{1}{4}$ -INCH RINGS	
C. Jansen	114
Ed. Muhl	114
Wm. Muhl	113
G. Muhl	113
C. F. Denkman	108
Julius Muhl	108
C. F. Denkman	108
H. L. Frazier	108
R. Lundberg	106
Julius Muhl	105

CONTRIBUTIONS—1928 INTERNATIONAL TEAM FUND

(Contributions received up to and including June 10) Previously acknowledged	\$693.66
M. F. Flores, Manila, P. I.	1.00
Joseph Hisc, Shegon, W. Va.	2.00
Joe Ridley, Ketchikan, Alaska	3.00
Walter L. Brewington, Anchorage, Alaska	1.00
H. M. Van Sleen, Gastonia, N. C.	2.00
A. D. Lochhead (address not given)	2.00
J. R. Buhmiller, Eureka, Mont.	1.00
Wm. Hood, Morgan, Utah	2.00
D. J. Cruise, Bakerfield, Calif.	2.00
L. Kaufman, Munich, N. Dak.	5.00
Chas. H. Drew, Detroit, Mich.	1.00
C. E. Stodter, Col., Canal Zone	5.00
R. A. Kleka, Bay City, Tex.	5.00
Albert B. Kline, Tappan, N. Y.	1.00
N. M. Keplwego, Sulphur Springs, Fla.	1.00
Geo. Baker, Riverside, Calif.	2.00
A. M. Todd, Penn Yan, N. Y.	1.00
S. E. Roule, Altoona, Pa.	1.00
Ricardo Palace, San Ysidro, Calif.	5.00
Harry L. Winrick, Sewickley, Pa.	2.00
Emil Leidolph, Buffalo, N. Y.	1.00
Jay W. Ratliff, Rogers, Tex.	1.00
Total	\$740.66

DRIVING TO CAMP PERRY

FOR the information of shooters who may be driving to Camp Perry for the National Matches by way of Sandusky, the schedule of the Sandusky auto ferry is published below.

Leave Sandusky—

A. M.	P. M.
7:00	12:55
8:10	2:05
9:20	3:15
10:30	4:25
11:45	5:35
	6:40
	7:40

The toll for one car and driver is \$1.10; 25 cents for additional passengers. This ferry is on State Route 2 out of Cleveland to Sandusky, and connects on the other shore with State Route 2, which goes into Port Clinton.

ANOTHER OLD FRIEND PASSES ON

TO MOST of our older readers the name of W. S. Davenport is quite familiar in connection with various interesting articles which Mr. Davenport has contributed to this magazine from time to time. To these readers, as was the case with ourselves, it will come as sad news to learn that Mr. Davenport is no longer with us. He died of pneumonia in a hospital in Berkeley, Calif., on April 3, although word did not reach us until after our June number was in the hands of the printer. Just before going to the hospital Mr. Davenport completed his last article for THE AMERICAN RIFLEMAN, which will be published in a future issue.

YOU MIGHT TRY A SHAM BATTLE

THE Palo Alto Rod and Gun Club of California is putting on a Duck Shoot on the Fourth of July, using a plan which is somewhat original. Most club members now and then get tired of puncturing holes in paper targets. They would like to shoot at something that would be a little more exciting. The Palo Alto plan seems to promise plenty of excitement as well as plenty of ducks to the lucky shooters.

This is the idea. The range is 200 yards; position, offhand; any rifle; any iron sights. Competitors will be grouped into squads with a maximum of five men and there will be one 10-inch breakable disk placed on the target butt for each competitor. Everybody shoots at the other fellow's disk and the last disk left up on the butt wins the duck. By controlling the size of each squad the club is certain to make a little money on each duck given away and at the same time every man on the squad has an even break for his duck.

This same plan can, of course, be applied to any kind of a prize shoot, but the idea of quacking ducks or cackling hens adding to the confusion on the range should serve to make this Palo Alto Shoot quite a lively affair.

National R. O. T. C. Champions



NORTH DAKOTA AGRICULTURAL COLLEGE RIFLE TEAM

Left to right: *Sitting*, Thomas Palmerlee, Albert Palmerlee, Earl Schoessow, Morris Banks, Clarence Reed, Frank Dvorak, Glenn Schoessow. *Left to right: Kneeling*, Curtis Ballard, Ronald Millard, Team Captain, Clarence Vogel, Raymond Hack, Lieut. Frank S. Ross, Team Coach, Arthur Johnson, Wayne Isenberger, Jerome Olson.

PISTOL TEAMS TAKE NOTICE

THE Roxbury Rifle and Pistol Club, of Dover, N. J., have organized a revolver team and would like to arrange for telegraphic pistol matches with teams from any rifle club, revolver club, college, police force or military organization in New Jersey. For particulars address the secretary, Allen P. Wescott, R. F. D. No. 1, Wharton, N. J.

ACTIVITY PLUS PUBLICITY

THE Mistletoe Rifle Club, of Okmulgee, Okla., believes in spreading the gospel of Americanism and rifle-shooting wherever an opportunity presents itself, believing the more men bitten by the rifle bug the better chance to combat that hook-nosed species of near humanity called reformers.

During the last month the Mistletoe Club's speakers have addressed the Chamber of Commerce membership and impressed upon those civic leaders the wonders of rifle-shooting, together with the atmosphere of true sport to be had, the value to the homes of the community of good riflemen, and the benefits to be derived from civic backing of rifle-shooting.

The club, largest in Oklahoma and composed with two exceptions of business and professional men, sent its speakers also to a district convention of Hi-Y boys, high-school students of 34 cities connected with the Young Men's Christian Association, and helped with organization work in rifle-shooting. A league is being formed among some of those 34 cities and towns, and the Mistletoe Rifle Club's members are helping with it.

The Mistletoe Club, incidentally, had more than 800 inches of rifle and pistol publicity in the year 1927, not only in its home city papers but also in other newspapers of the State.

IDEA!

THE riflemen of today are travelers. We have them dropping in at Headquarters by the score. We receive all kinds of letters from members saying that they are planning on taking a trip somewhere. Both those who write and those who visit with us ask the same question, "Where is there a live club?"

From one of these visitors comes an idea that is well worth considering by every live outfit. Why not have your name listed in the local telephone directory? If your club doesn't have its own club rooms, with someone always there, you certainly have a live-wire secretary or executive officer who has a telephone. List the name of the rifle club with the telephone company, giving your secretary's or executive officer's phone number. The expense for such listing is inconsiderable. It might even be well to have the name listed in the classified section of the phone book under the heading of "R" for rifle club. Then when the visiting rifleman drops into your locality and wants to know where he can shoot or stop in for a while and talk shop with shooters, he will be able to find you. Incidentally, there are a lot of people always looking through the telephone directory and you may be surprised at the number of people right in your own locality who will call you up to find out where and when the club shoots, how much the dues are, etc.

This is a worth-while idea. It comes from a man who travels a great deal and who is always looking for rifle clubs in the towns where he stops. Try it!

WANTS TO SHOOT

THE newly organized rifle and revolver club at Loveland, Colo., is interested in arranging for .22-caliber or .30-caliber rifle matches or pistol matches with other clubs. The Loveland outfit will shoot by mail, or would particularly like to arrange for

shoulder-to-shoulder events with other clubs in northern Colorado. Communications should be addressed to Mr. E. W. Behrend, Secretary, Loveland Rifle Club, Loveland, Colo.

NATIONAL GUARD TEAM TRAINING

THE following paragraphs are extracts from a memorandum submitted by Capt. C. S. Shields, of the District of Columbia National Guard, to the Adjutant General of the District of Columbia in regard to the training of a rifle team for the National Matches. There are some good ideas in this memorandum which may be of value to prospective team captains of civilian teams preparing for the trip to Camp Perry this year:

SEPTEMBER 25, 1927.

TRAINING OF THE NATIONAL GUARD NATIONAL MATCH RIFLE TEAM

A rifle team, like any other organization, must have discipline to be successful. The next question is how the team captain is to obtain discipline. First he must eliminate all Bolshevik individuals, even though they are better individual shots than others who are amenable to discipline.

Wives and lady friends should be discouraged from visiting team members while at National Matches, as team members haven't the time to devote to them that they think they require. The team captain should be the commanding officer of every man on the team.

The men should be paired off as soon as possible. Great care should be taken to see that men paired together have confidence in each other. New men should be paired with old men that will help and encourage them the most. Pairs should be inseparable both on and off the firing line, and should work the coach-and-pupil method, as described in Training Regulations 150-5, all through the practice season.

At least one-half each day, for weeks before the matches, should be devoted to position drills, rapid-fire exercises, and dry shooting. The assembled team should be given these drills by the team coach as often as possible. The team coach should see that each member is furnished with a rifle to keep at home and exact from him, on his word of honor, that he practice these position exercises for at least one-half hour either before retiring or after rising in the morning in addition to the assembled practice.

The coach should see that no freak positions are used, and that the men become accustomed to wearing proper shooting apparel, the cartridge belt worn in practice, and that the service hat is not supplanted by attractive eyeshades.

The coach should by all means be furnished with a stop watch for rapid-fire timing, and a telescope through which bullet holes may be seen plainly up to and including 300 yards.

Small-bore shooting with the Springfield rifle with regulation three-pound trigger pull should be encouraged, as nothing will show a

man that he is not holding, bucking or flinching as quickly as shooting the small-bore.

The coach should compile a chart showing zeros and micrometer readings at each range for every man on the team, and the coach should check the sight-setting and windage of every man at every team practice and in every team match just before the man fires his first shot. This chart should also show what each man's sight-setting is by the coach's personal micrometer, and the coach should, after having checked the sight-setting with the man's micrometer, make a double check by setting his micrometer and checking the sight-setting by figures shown for it.

C. S. SHIELDS,
Captain, 121st Engrs., D. C. N. G.,
Team Captain, 1927.

SEAMEN MARKSMEN TRIM BENICIA

A RIFLE match was fired at Benicia Arsenal, Benicia, Calif., on Wednesday, April 4, 1928, between teams representing the U. S. S. *Mississippi* and Benicia Arsenal. The course fired consisted of 10 shots at each of the following ranges: 200 yards standing, 200 yards rapid fire, 300 yards prone, 300 yards sitting, and 300 yards rapid fire, all firing being at the A target.

A return match at the Mare Island Navy Yard is being arranged for the near future.

The results of the match were as follows:

U. S. S. "MISSISSIPPI"

300 Pr.

Ban. Mate (1st cl.)	D. W. Mercer	46
Pvt. (1st cl.)	C. H. Brunk, U. S. M. C.	46
Seaman (2d cl.)	J. Naidoo	45
Gun. Mate (3d cl.)	E. N. Shrivs	42
Fire Cont. man (3d cl.)	C. A. York	42
300 Sit. 300 R. F. 200 St. 200 R. F. Total		
42	38	39
44	39	43
45	45	39
45	43	35
46	40	41
		212
Team total		1,073

BENICIA ARSENAL

300 Pr.

Capt. S. P. Meek, Ord. Dept.	44			
Sgt. E. P. Laybourn	42			
Sgt. H. G. Ebbert	47			
Cpl. A. L. Smith	43			
Pvt. (1st cl.) J. Waxman	44			
300 Sit. 300 R. F. 200 St. 200 R. F. Total				
44	45	42	43	218
44	42	41	47	216
46	38	41	43	215
44	35	36	43	201
43	40	40	42	209
Team total				1,059

LIMA CLUB TAKES PISTOL HONORS

LIMA, Ohio, civilians claim the large-bore revolver championship of Ohio through defeating Toledo, Dayton and Lima Police Departments in the second annual tourney May 27, at the Tony's Nose range.

The scores were: Lima Rifle and Revolver Club, 983; Toledo, 977; Dayton, 900; Lima Police, 846.

Only three men went over the 80 per cent mark. Fakkehany of Toledo scored 214 points out of a possible 250 for high target. Ivo Sonderhan of the Lima Club, placed second for individual honors with 209. Ralph

S. Marshall, Sonderhan's teammate, fired 206. Patrolman Bruce Sodders, of the Lima Police Department, scored 188 for high place on his team.

The 36 competitors were divided as follows: Lima Police, 10; Lima Club, 10; Dayton and Toledo, 8 each. Only the five high total scores were added for the respective teams' totals.

More than 100 persons watched the revolver experts blaze at the 50-yard targets.

Following are the summaries:

LIMA R. AND R. C.			Gt.	Pct.
I. Sonderhan	125	84	209	83.6
Marshall	123	83	206	82.4
Place	114	82	196	78.4
Wilson	98	81	179	71.6
R. Sonderhan	112	81	193	77.2
Total			983	

TOLEDO POLICE			Gt.	Pct.
Fakkehany	122	82	214	85.6
Knudle	123	77	200	80.0
Oatley	122	70	192	77.8
Armstrong	108	78	186	74.4
Grove	111	74	185	74.0
Total			977	

DAYTON POLICE			Gt.	Pct.
Riley	119	79	798	79.2
Brown	115	66	181	72.4
Aldridge	93	87	180	72.0
Poland	104	70	174	69.6
Walker	97	70	167	64.8
Total			900	

LIMA POLICE			Gt.	Pct.
Sodders	113	75	188	75.2
Bowsher	101	68	169	67.6
Edwards	92	74	166	66.4
Strick	105	57	162	64.8
James	93	68	161	64.4
Total			846	

MICHIGAN STATE INDOOR PISTOL CHAMPIONSHIP

Course: 10 shots slow-fire, 10 timed and 10 rapid, 20 yards, S. A. pistol target.

HIGHLAND PARK R. AND R. CLUB NO. 1—45 AUTOMATIC

Name 60 ft. slow 40 ft. time 40 ft. rapid Total

J. T. French	64	72	64	200
Gates	81	76	72	229
Foster	79	77	79	235
Petersinnes	82	79	81	242
Lowry	82	70	69	221
Total	388	374	365	1,127

DETROIT POLICE DEPARTMENT—38 SPECIAL

Name 60 ft. slow 40 ft. time 40 ft. rapid Total

Antonewicz	80	75	73	228
Sanderson	82	76	81	239
Parks	81	70	73	224
Ignish	72	78	71	221
Viau	70	68	56	193
Total	385	367	354	1,106

GRAND RAPIDS NAVAL RESERVE—45 AUTOMATIC

Name 60 ft. slow 40 ft. time 40 ft. rapid Total

Hayes	34	44	65	143
Sorum	23	35	33	91
C. Van Kammen	50	34	43	127
Weber	30	45	47	122
I. Van Kammen	62	62	62	186
Total	199	220	250	669

JOHN WALLACE GILLIES MEMORIAL MATCH

By GEO. S. BERGMAN, SECRETARY ROOSEVELT RIFLE CLUB

THERE is one complaint that the shooters could not possibly register at Peekskill, May 27—there was no dust. Intermittent showers about every hour on the hour saw

to that. The rain was not uncomfortable, and 39 competitors braved the cloudy sky to try their hand for the handsome bronze trophy. The scores reflect the serious handicap the shooters were under because of the changing light with the intermittent rains, coupled with a breeze fish-tailing from 4 to 7 o'clock. If there is anyone who has mastered a system for doping a wind coming from behind the shooter he will be a benefactor to the rifle world if he will write an article to THE AMERICAN RIFLEMAN divulging his secret.

There were an even half dozen International Dewar men on the firing line, and yet the winning score turned in by Jerry Hilborn was only a 391. Surely the conditions accounted for a loss of 4 to 5 points per man. Even the old veteran George Sheldon started off like a house afire with a possible and a 99 at 50 yards and knocked out a beautiful 99 on his first target at 100 yards. On his second target, however, the wind completely buffeted him to the tune of 8 points. Too bad, for George was all primed to take the trophy back to Poughkeepsie again, having won it in 1927, and having had the pleasure of keeping it in his home for a year. Well, Jerry Hilborn walked off with first place, making a possible and a 97 at 50 yards, and 95 and 99 at 100 yards, winning out on his strong finish. For this he receives the Gorham Bronze Bronco Buster Trophy for one year and a bronze wall tablet commemorating the victory, which he retains perpetually. Nisbet came all the way down from Kent, Conn., to put up a battle royal, turning in a 98 and a possible at 50 yards and a 97 and 95 at 100 yards. However, he was just nosed out, so had to be content to return home with second place silver medal. Sheldon of course received the bronze medal for third place, while Fred Johnson, of Mt. Vernon, took the luck prize for thirteenth place.

In the Telescope Match the scores were far better, as the wind died down late in the afternoon; but this did not help the late comers, who used iron sights, as the light fell rapidly. M. Stevens, of Poughkeepsie, winner of the Telescope Match B in 1927, repeated his performance and again took first place to win his second bronze tablet. Evidently Stevens is making a collection of them. Whatever his purpose he certainly is entitled to it for his remarkably fine performance. He started off with a 99 at both 50 and 100 yards and finished each range with a possible for a total of 398. Sheldon, also of Poughkeepsie, had the same hard luck streak in the Telescope Match as he had with the iron sights, getting off with two 99's at 50 yards and a possible on his first target at 100, only to drop 4 points on his second 100-yard target, giving him a total of 394 for second place and a silver medal.

Eric Johnson, our old friend formerly connected with the Ardmore Club in Oklahoma, and now sojourning in New Haven, Conn., was third with 392, receiving a bronze medal. There were altogether five scores of 392 in Match B, but Johnson outranked them all.

Here again Nisbet, of Connecticut, tied, just as he did in the iron sight match, but did not fare as well as with the iron sights. Nisbet and Sheldon were tied with 390, but Nisbet outranked, having the better score at 100 yards. In the Telescope Match Nisbet's luck ran the other way, as Johnson outranked him and he had to be content with fourth place. Charlie St. John, Jerry Hilborn and William Keighley also made scores of 392, but were ranked in the order given. C. M. Guldner, of Yonkers, took the novelty luck prize for thirteenth place in the Telescope Match; quite a come down after having taken first a week previous on the same rifle range in a 200-yard Springfield Match.

The turnout was satisfactory, but certainly not all that it should have been, and the Roosevelt Rifle Club feels that as soon as the small-bore bounds in the East realize the value and beauty of the Gillies Memorial Trophy they will turn out to a man. Here's hoping for 1929.

THE WINNERS

<i>International Dewar Course, metallic sights, for bronze trophy</i>	
1. J. M. Hilborn	Roosevelt R. C.
2. R. Nisbet, Kent, Conn.	
3. G. Sheldon, Roosevelt R. C.	
13. C. F. Johnston, Roosevelt R. C.	

Telescope, 50 and 100 yards

Telescope, 50 and 100 yards	
1. M. Stevens, Poughkeepsie R. C.	
2. G. Sheldon, Roosevelt R. C.	
3. Eric Johnson, New Haven	
13. G. M. Guldner, Roosevelt R. C.	

OFFICIAL BULLETINS—N. R. A. NATIONAL MILITARY GALLERY MATCHES

NATIONAL INDIVIDUAL MILITARY CHAMPIONSHIP—MAY 18, 1928

1. Lt. Wm. Weston, New York City	687
2. Lt. Hubert S. Miller, Cincinnati, Ohio	674
3. Leroy H. Anderson, Chicago, Ill	651

NATIONAL MILITARY COMPANY CHAMPIONSHIP—MAY 18, 1928

1. Co. I, 38th Infantry, Fort Douglas, Utah . . .	3,382
2. Co. E, 121st Engrs., Washington, D. C.	3,328
3. University of Cincinnati, Cincinnati, Ohio	3,288
4. Co. E, 132nd Infantry, Chicago, Ill.	3,273
5. Co. F, 174th Infantry, Buffalo, N. Y.	3,247
6. Co. A, 3rd Infantry, Ft. Snelling, Minn.	3,215
7. 10th Cavalry, Fort Huachuca, Ariz.	3,157

UNABLE TO FIRE

8. Marine Barracks Detachment, Boston, Mass.
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NATIONAL REGIMENTAL CHAMPIONSHIP—MAY 18, 1928

NOTE.—Five high scores at each stage to count for record, but 5 medal winners (high total scores) are listed.
1. 121st Engineers, D. C. National Guard, Washington, D. C.
2. 7th Infantry, Vancouver Barracks, Wash.
3. 138th Infantry, St. Louis, Mo.
4. 10th Infantry, Fort Thomas, Ky.
5. 10th Cavalry, Fort Huachuca, Ariz.

GREAT LAKES GALLERY MATCHES APRIL, 1928

By E. L. A. BRUGER, SECRETARY LADYSMITH RIFLE CLUB

WE STARTED these matches on short notice and did not get the entries we should have liked; still did well enough to try the idea out, and intend to make an annual shoot of it and get started earlier in the year after this. We charged \$2.50 entry fee in the club matches, and 25 cents per man in the individual, with re-entry permitted if desired, and secured six team

entries and 25 individuals. Instead of distributing prizes, or medals, to the winners, we are presenting some nicely printed trophy cards to the members of the three high club teams and the first fifteen shooters in the individual matches. The Ladysmith targets were registered and then checked for scores afterward by the Eau Claire club. We are very well pleased with the matches and want to thank the other clubs for the response received. Apparently all of the shooters were very much interested in the outcome of the matches and want to try it again next winter. Results follow:

GALLERY RIFLE TEAM MATCH

(Eight shots offhand, 4 kneeling, 4 sitting, 4 prone, at 50 feet)	
Nemadji Rifle Club, Superior, Wis.	920
Ladysmith, Wis., Rifle Club	895
Solon Springs, Wis., Rifle Club	847
Thiel River Falls, Minn., Rifle Club	818
Stout Rifle Club, Menomonie, Wis.	799
Poskin Rifle Club, Barron, Wis.	778

INDIVIDUAL CHAMPIONSHIP RIFLE MATCH

(Eight shots offhand, 4 kneeling, 4 sitting, 4 prone, at 50 feet, old standard N. R. A. target)	
Competitor	Total
1. E. L. A. Bruger, Ladysmith	192
2. Oscar Wold, Eau Claire	190
3. H. L. Whitney, Superior	189
4. R. J. Emerson, Superior	188
5. A. Rockstad, Ladysmith	187
6. J. H. Ziegler, Superior	186
7. O. F. Multvain, Superior	178
8. Paul Kranzusch, Menomonie	176
9. Paul C. Nelson, Menomonie	174
10. O. N. Fisher, Eau Claire	172
11. H. C. Lavery, Superior	170
12. S. E. West, Superior	170
13. O. C. Smith, Ladysmith	166
14. Earl Nutter, Superior	166
15. G. M. Fox, Superior	164
16. Ray Werner, Menomonie	157
17. L. P. Waldorf, Ladysmith	152
18. Schaffner, Menomonie	148
19. Hilda Balerud, Menomonie	143
20. Kenneth B. Dike, Menomonie	139
21. Erving Johnson, Menomonie	137
22. A. B. Henderson, Superior	127
23. Henry J. Fischer, Menomonie	107
24. Myron Goodwin, Menomonie	60

PENNSYLVANIA MARKSMEN, ATTENTION!

Editor of AMERICAN RIFLEMAN.

DEAR SIR: My object in writing you is to ask your co-operation in putting over a match for a crack Pennsylvania team to answer the challenge of the Iowa team in the April issue of THE AMERICAN RIFLEMAN. I wrote Colonel Kemp in Philadelphia asking him to take charge of the team, but as he is to be in Europe he suggested that I captain a team, as he would be unable to assist at this time.

I would consider it a great help on your part if you would insert an article in the next issue of the RIFLEMAN, asking that all shooters of Pennsylvania who average 87 per cent or over offhand, free rifle, drop a card to W. L. Wilson, 112 Sassafrass Street, Erie, Pa. I will forward them each a set of targets for a tryout. I was asked to hold a preliminary shoot to determine who are the twenty best men in the State in the offhand position. These men will have the privilege of defending Pennsylvania's honor in the rifle-shooting field.

Those who read the challenge know that it called for an offhand match, 50 yards, free rifle, any sights, small-bore, 50 shots per man. We are anxious to show those Iowans what Pennsylvania can do, and

incidentally we may deflate their heads a bit.

I urge you to do your utmost in putting this match over, as the enthusiasm is apt to wane if allowed to cool off, and we want them to know that Pennsylvania is right after their scalps. I received a letter from Friedrichs, of Iowa, stating that he guessed that he would have to make that challenge any two States, if there were no more responses to the challenge. In fact, at that time no one had answered the challenge.

Looking forward to your answer with great anticipation, I remain,

Respectfully,

WILBUR L. WILSON,
President, Lawrence Park Rifle Club, Inc.

MISSOURI STATE ASSOCIATION RIFLE-PISTOL MATCHES

THE Missouri State Rifle and Pistol Association held its Second Annual State Shoot on the University of Missouri ranges at Columbia, Mo., May 18 and 19. About 200 competed in these matches. There was an excellent representation, considering the matches are only two years old. An excellent turnout from the high and military schools was noted. When next year's shoot is held there will probably be twice the entries in the matches. All ranges were taxed to capacity, the small-bore, large-bore rifle ranges, and the pistol ranges being in constant use from the time the matches started until their end. All entry lists exceeded the expectation of the match officials.

The students from the University of Missouri furnished the pit and scoring detachments, and old-timers from Perry who were present stated that everything went off fine. The present State Association is organized along very broad lines, and they take in all classes of shooters who care to come in, regardless whether in service or out of service. We have representatives from the Regular Army, National Guard, Organized Reserves, civilian groups, the high schools and colleges. The high-school group will constantly grow, as there is a great deal of interest in the Kansas City and St. Louis High Schools, and this year both cities had good representations.

In many cases the old-time shots who had been at Perry carried away the prizes, but now and then newcomers came in and outshot them. Due to the fact that the match was earlier in the season some scores may seem low, but they will compare favorably with any shot at this time of the year.

The Kansas City and St. Louis Police forces were well represented in the pistol matches, and all of the pistol scores were unusually high. All firing was done in accordance with regulations as used at the National Matches. The results of all championship events follow (only medal winners are listed):

INTERCOLLEGiate TEAM MATCH

1. University of Mo., Team No. 1	485
2. University of Mo., Team No. 2	455
3. Missouri Valley College, Marshall, Mo.	367

CIVILIAN CLUB TEAM MATCH

1. Glendale Rifle Club, St. Louis, Mo.	490
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2. Jefferson City R. and P. Club, Jefferson City Mo. 446
3. Mexico Rifle Club, Mexico, Mo. 385

JUNIOR TEAM CHAMPIONSHIP

1. Marshall High School, Marshall, Mo. 409
2. Missouri Military Academy, Mexico, Mo. 401

INDIVIDUAL INTERCOLLEGiate

1. Edmondson, G. B., Univ. of Mo., Columbia, Mo. 127
2. Taylor, R. H., Univ. of Mo., Columbia, Mo. 121
3. Couchman, C. C., Univ. of Mo., Columbia, Mo. 121

INDIVIDUAL CIVILIAN

1. Hall, S., Glendale Shooting Club, St. Louis, Mo. 133
2. Condie, D. K., Glendale Shooting Club, St. Louis, Mo. 128
3. Adams, W., Glendale Shooting Club, St. Louis, Mo. 115

TYRO TEAM MATCH

1. Glendale Rifle Club, St. Louis, Mo. 384
2. Univ. of Missouri Service Team, Columbia, Mo. 363
3. Univ. of Missouri Team No. 2 358
4. Company I, 138th Infantry, Marshall, Mo. 350
5. Mexico Rifle Club, Mexico, Mo. 340
6. Jefferson City R. and P. Club, Jefferson City, Mo. 334
7. Missouri Military Academy, Mexico, Mo. 326
8. Wentworth Military Academy, Lexington, Mo. 300

FREE-RIFLE CHAMPIONSHIP

- Course of fire:* 20 shots offhand, any rifle, 200 yards, Target A.
1. Dyer, O. L., VFW Post 1145, St. Louis, Mo. 91
2. Jenkins, J. T., 6th Infantry, Jefferson Bks., Mo. 87
3. Hurt, John W., Wentworth Military Acad., Lexington, Mo. 85

GOVERNOR'S MATCH

- Course of fire:* 10 shots prone, 10 shots sitting, 10 shots standing, 300 meters; target, International; rifle, any; sights, any.
1. Hall, Sydnor, Glendale Club, St. Louis, Mo. 223
2. Jenkins, J. T., 6th Inf., Jefferson Bks., Mo. 215
3. Spikes, Carl, 6th Inf., Jefferson Bks., Mo. 211
4. Dyer, O. L., VFW No. 1145, St. Louis, Mo. 208
5. Dawson, J. W., Jefferson City R. and P. Club 202
6. Wheeler, J. M., Mexico Mil. Acad., Mexico, Mo. 200
7. Ulseth, B., 6th Inf., Jefferson Bks., Mo. 188
8. Beecher, S. L., Glendale Club, St. Louis, Mo. 182
9. Holtgrive, M. M., Jefferson City R. and P. Club 170
10. Dittbrenner, E. E., Jefferson City R. and P. Club 168

JUNIOR COLLEGIATE INDIVIDUAL

1. Reynolds, A., Missouri Mil. Acad., Mexico, Mo. 115
2. Whitsett, R. E., Missouri Mil. Acad., Mexico, Mo. 102
3. Gillespie, Marshall High School, Marshall, Mo.

STATE SMALL-BORE CHAMPIONSHIP

- Course of fire:* 200 yards; 10 shots prone, 10 shots sitting, 10 shots kneeling, 10 shots offhand; target A; 19-inch bull's-eye; arm, any .22-caliber rifle containing iron sights, position, TR 150-5, except standing position, offhand as used at the National Matches.
1. Winston, W. C., Univ. of Mo., Columbia, Mo. 187
2. Taylor, R. H., Univ. of Mo., Columbia, Mo. 183
3. Beecher, S. L., Glendale Club, St. Louis, Mo. 183
4. Stewart, Ed., Kansas City High Schools, K. C., Mo. 182
5. Coghlan, J. J., Capt. Inf., Univ. of Mo., Columbia, Mo. 182

INDIVIDUAL GIRL'S MATCH

- Course of fire:* 20 shots at 50 yards and at 100 yards.

1. Garst, Ruth, Univ. of Mo., Columbia, Mo. 364
2. Fagin, Frances, Univ. of Mo., Columbia, Mo. 361
3. Eaton, Violet, Univ. of Mo., Columbia, Mo. 360

JUNIOR DEWAR CHAMPIONSHIP MATCH

1. Roiser, C. A., Kemper Military School, Bonneville, Mo. 381
2. Zimmerman, A. M., Kemper Mil. School, Bonneville, Mo. 377
3. Love, W. T., Univ. of Mo., Columbia, Mo. 377

SENIOR DEWAR INDIVIDUAL MATCH

1. Wright, J. G., Kansas City High Schools, K. C., Mo. 385
2. Love, W. T., Univ. of Mo., Columbia, Mo. 383
3. Winston, W. C., Univ. of Mo., Columbia, Mo. 382

DEWAR TEAM MATCH

(Teams consisted of four firers and one alternate)

1. University of Missouri, Columbia, Mo. 1,498
2. Kemper Military School, Bonneville, Mo. 1,495
3. University of Missouri Girl's Team, Columbia, Mo. 1,441
4. Wentworth Military Academy, Lexington, Mo. 1,420

PISTOL MATCHES

R. O. T. C. PISTOL TEAM MATCH

1. University of Missouri, Columbia, Mo. 1,144

R. O. T. C. INDIVIDUAL PISTOL MATCH

1. Noland, G. L., Univ. of Mo., Columbia, Mo. 235
2. Sapper, W. L., Univ. of Mo., Columbia, Mo. 234
3. Courtney, C. R., Univ. of Mo., Columbia, Mo. 232

SERVICE TEAM CHAMPIONSHIP

1. Hdqrs. Battery, 128th F. A., Columbia, Mo. 1,140
2. Univ. of Mo. Service Team, Columbia, Mo. 1,140

OPEN TEAM MATCH

1. University of Missouri, Columbia, Mo. 1,317
2. St. Louis Police Team No. 1, St. Louis, Mo. 1,275
3. St. Louis Police Team No. 2, St. Louis, Mo. 1,202
4. Glendale Club, St. Louis, Mo. 1,141

POLICE TEAM MATCH

1. St. Louis Police Team No. 1, St. Louis, Mo. 1,316
2. Kansas City Police Team, Kansas City, Mo. 1,251
3. St. Louis Police Team No. 2, St. Louis, Mo. 1,224

POLICE INDIVIDUAL MATCH

1. Yanick, O. J., St. Louis Police Dept., St. Louis, Mo. 256
2. Watkins, B. J., Kansas City Police Dept., K. C., Mo. 256
3. Bosch, Nick, Lieut. St. Louis Police Dept. 251

ROBERTS ISLAND DROPS ONE TO DINUBA

By "TED" A. SHAW

THE Dinuba Rifle Club has come to the front very rapidly during the last two years. The writer has witnessed some very good shooting by this club. Out of a total of 25 matches fired during the last two years they have only lost one and that was to Riverdale last year. Dinuba defeated the Riverdale club two out of three matches the past year and won all three this year.

One of the outstanding features of this year's shooting was the performance of Arthur Craven, his high score for the season being 246 x 250 on Course D. Craven's average shooting on this course for the season was 242, which is a record any shooter can be proud to make.

After defeating every team in the San Joaquin Valley, Dinuba started out to hunt bigger game; so they issued a challenge to Roberts Island Rifle Club of Stockton. You all know the Roberts Island Team record and what a wonderful team they have; so I will not go into detail to tell you about them, but I will tell you what happened on this pilgrimage to Roberts Island.

We picked seven of our men and told them to go to Stockton on April 29 and to shoot better than they had ever shot before.

The boys arrived at Roberts Island, which is about 160 miles from Dinuba, at 9 a. m. and the firing started at 10.

The Roberts Island club has one of the most wonderful clubhouses and range that I have ever seen. Their 200-yard range is over a green alfalfa field. There are eight targets in a cement pit which when not in use is covered over to protect it from the weather. There is an electric buzzer to each target, so that the pit men can be notified

which target has been fired on and so there will be no mistake in pulling the wrong target.

The clubhouse is equipped with a 75-foot indoor range, and a large room with large open windows for the shooters to watch the outdoor shooting. In the upper story there is a big dining room in which the shooters may enjoy a good meal after allowing a Springfield to kick them all over the field for a good half day.

At the end of the slow-fire prone the two teams were tied. After the sitting and kneeling Dinuba was ahead. The offhand was then shot, and Roberts Island gained back what they had lost; so the two teams were tied up to the rapid-fire.

Firing was then stopped and everyone was ushered up to the dining room, where we had one of the best meals I have ever eaten on a rifle range, and one which was enjoyed by everyone.

I want to say right here that if any team ever gets the opportunity to go to Roberts Island they better get there even if they have to walk. You will find the finest bunch of sportsmen there that you have ever associated with.

After we had lunch the rapid fire was started. At the end of the rapid-fire sitting Dinuba was 4 points ahead. On the rapid-fire prone Dinuba men all made possible, while Roberts Island lost 5 more points, allowing Dinuba to win the match by 9 points.

Although Dinuba won this match Roberts Island is not whipped yet. This was only a knockdown, and they will not stay down for the count of ten.

The individual scores in this match were:

	Dinuba	Roberts Island	
Bernier	240	Barthold	241
Stringer	239	McCormick	238
Craven	238	G.Y.R.	236
Harness	238	Ronkendorf	234
Pattee	237	Wolfsinger	234
Worthley	237	Lehmann	232
Weiss	232	Randall	225

CRISTOBAL WINS ZONE PISTOL MATCH

AN UNUSUAL pistol match was recently held on the Canal Zone, to determine which of the Zone Police, Army, or Civilian Pistol Teams would get the largest score over the Canal Zone Police Target course.

This course consists of 5 shots at 15, 25 and 50 yards on steel target, 30 seconds per string of 5 shots, and 2 runs of the moving target, which is a lifesize silhouette of a "gentleman of color," at 10 seconds per string of 5 shots. Posts are placed at intervals along the 25-yard run, and only one shot may be fired in each space. Hit in black counts 5, in white (outside part of target frame) 2. Possible score over range, 200. Police qualification requires score of 150 or better, to qualify shooter to shoot in finals for Police Championship, shot once a year.

Five 5-man teams were entered, representing the Cristobal Zone Police, the Balboa Zone Police, the Balboa Gun Club, the Cristobal Gun Club, and France Field Air Station, U. S. A.

Team scores were as follows:

The Cristobal Gun Club.....	850 x 1,000
Cristobal Zone Police.....	838 x 1,000
Balboa Zone Police.....	836 x 1,000
Balboa Gun Club.....	831 x 1,000
France Field Team.....	820 x 1,000

High Individual Score was tied between Harrell, of the Balboa Zone Police, and Leighton, of the Cristobal Gun Club, each making 182 x 200. Harrell won on the flip of a coin, winning first money. Harrell made 141 x 150 over the target course, while Leighton made 47 x 50 over the Moving Target course.

This gives the Cristobal Gun Club Team and the Cristobal Zone Police Team each one leg on a three-shoot match, the Zone Police winning the first match with 825 x 1,000 to the Cristobal Gun Club's 822 x 1,000.

Another match along these lines will be held July 4, at Cristobal.

ANOTHER OLD-TIMER HEARD FROM

THE following article is about an old-timer who is hard to beat when it comes to shooting irons of any kind, color or description. My father is in his 77th year, and stepped out to his range in Kingston, Mass., a few days ago and made four 5-shot targets, all shots but one within 1-inch bulls. He sent me these targets and told me to keep them until I was in my 77th year, and then try to do as well; but as I had seen in THE AMERICAN RIFLEMAN a request to hear from old-timers, and the targets were so good, I could not keep them to myself; therefore this article.

These four targets were made at 75 feet, sitting position, telescope sight, with a 25-20 Winchester rifle, by my good old dad. He loads all his own shells and uses a special small charge on his 75-foot range.

My father has shot a rifle all his life, as he started with a muzzle-loading shotgun at the earliest age his father would permit him to shoot a gun. His boyhood days were spent on a farm in Bucks County, Pa. Near this farm was an old millrace, and I have heard him tell many times of his tying a white rag on the end of his gun and going down to that millrace at night to shoot muskrats. When I was a boy of 14 I heard him tell of the good times he had by himself on that millrace; so I went to a creek near our place one moonlight night; but it was entirely too quiet and "scarey" for me, so I beat it home; but with him it was all pleasure to do anything that required a gun for a companion.

During my time I can remember of his having at different times the following rifles: .32-20 Winchester, .38-56 repeating Winchester, .38-55 Ballard, .25-20 Ballard, .22 Stevens, and an old muzzle-loading rifle. He is now using a .25-20 Winchester. His guns are always in perfect condition, and he shoots every week at least once, if not more often. He is a real red-blooded American, and anyone wishing to know a regular 100 per cent gun crank I will enjoy introducing him to my dad.

G. C. SMITH,
201 Urban Avenue, Norwood, Pa.

SECOND ANNUAL SOUTHWESTERN TOURNAMENT

THE Second Annual Southwestern Small-bore and Pistol Tournament, fired under the auspices of the Trinity Rifle Club and sanctioned by the N. R. A., was held at Dallas, Tex., May 12-13. Cloudy weather with showers late in the day on the "unlucky 13th" cut the attendance on the second day. However, attendance on the opening day was not as large as was expected, although the ones present were sure 'nuff "shooting bugs." Officers of the Trinity Club in profiting each year from experience in holding this tournament confidently hope to make the Southwestern Shoot an annual competition looked forward to with keen interest.

Program this year included about the same matches as were programmed last summer, except that no sporting rifle event was listed.

Results of the individual and team championship events in which the N. R. A. awarded competition medals follow:

INDIVIDUAL SMALL-BORE CHAMPIONSHIP (50-100-200 yards prone—10 shots each range; possible score, 250.)

T. Randle, Dallas.....	247
V. A. Moore, Dallas.....	245
S. W. Godbold, Dallas.....	243
H. E. Brill, Tulsa, Okla.....	243
D. W. Wood, Dallas.....	242
J. L. Raven, Austin.....	240
T. P. Burdett, Austin.....	235
A. L. Forke, Dallas.....	235
L. C. Turner, Fort Worth.....	233
Dr. C. E. Watson, Dallas.....	232
S. B. Thomas, Fort Worth.....	232
W. L. Montgomery, Avenger.....	232
R. P. Patterson, Fort Worth.....	230
R. C. Pope, Dallas.....	228
N. W. Smith, Fort Worth.....	228
A. L. Wilson, Dallas.....	192

INDIVIDUAL PISTOL CHAMPIONSHIP

(10 shots slow fire, 50 yards; 10 shots timed fire, 25 yards; 10 shots rapid fire, 25 yards. Possible score, 300.)

W. J. Reed, Dallas.....	227
R. L. Van Story, Fort Worth.....	217
S. C. Wright, Oklahoma University.....	215
E. F. Dosch, Oklahoma University.....	211
F. B. Naill, Fort Worth.....	207
E. C. Beyette, Dallas.....	200
M. L. Henry, Oklahoma University.....	196
H. R. Linderfelt, Oklahoma University.....	195
H. E. Brill, Tulsa, Okla.....	126
M. N. Gezentanner, Oklahoma University.....	106

SMALL-BORE TEAM

(10 shots, 50 yards; 10 shots, 100 yards; 10 shots, 200 yards. Possible score, 250.)

TRINITY RIFLE CLUB—DALLAS

D. W. Wood.....	245	S. W. Godbold.....	239
T. Randle.....	244	Total.....	1,209
Dr. C. E. Watson.....	241		
V. A. Moore.....	240		

FORT WORTH PISTOL AND RIFLE CLUB

L. C. Turner.....	246	S. B. Thomas.....	232
N. M. Smith.....	242		
A. L. Knight.....	237	Total.....	1,191
R. L. Van Story	235		

OKLAHOMA

H. E. Brill.....	247	H. Cheuvron.....	227
H. L. Wilson.....	241		
J. L. Raven.....	234	Total.....	1,182
F. O. McLean.....	233		

DALLAS

A. L. Forke.....	238	A. L. Wilson.....	224
W. J. Reed.....	234		
C. F. Nelson.....	232	Total.....	1,158
R. C. Pope.....	230		

PISTOL TEAM

(25-yard slow-fire team match. Possible score, 500.)

TRINITY RIFLE CLUB

M. L. Mowrey.....	100	W. L. Holmes, Jr.	86
D. W. Wood.....	98		
E. C. Beyette.....	92	Total.....	462
W. J. Reed.....	91		

OKLAHOMA

J. L. Rover	96	H. L. Wilson	89
H. E. Brill	94		
F. O. McSean	91	Total	461
H. Cheuvron	91		

FORT WORTH

R. P. Patterson	96	L. C. Turner	87
F. B. Naill	92		
R. L. Van Story	90	Total	455
R. T. Dorsey	90		

OKLAHOMA UNIVERSITY

R. B. McCaskill	93	M. L. Henry	82
S. C. Wright	90		
H. R. Linderfelt	88	Total	439
E. F. Dosch	86		

ERIE SHOTS CHALLENGE PISTOL TEAMS

KEYSTONE Rifle Club, of Erie, Pa., would like a 50-yard pistol or revolver match with any five-man team (pistol or revolver), 50 shots, Standard 50-yard target, N. R. A. or U. S. R. A. rules. Address answers to William Rohrbacher, 851 East 6th Street, Erie, Pa.

DAVENPORT MONTHLY SHOOT

AT THE monthly shoot of the Davenport Shooting Association, held at Forest Park range Sunday, May 6, some fine scores were shot. Ed. Muhl, on the People's Target, came within a hair of making the possible 75; but one of the shots was only a 24, whereas the other two spotted the 25 center. All shooting was offhand, any sights. Following are the scores:

Honor Target—3 shots—Possible 75

Ed. Muhl	69	Emil Berg	58
C. Jansen	67	H. L. Frazier	58
Wm. Muhl	67	W. Lundberg	56
H. W. Holdorf	65	C. F. Denkman	53
E. Rutenbeck	64	E. Grundmeier	51
G. Muhl	64	H. Kraft	51
J. F. Nabstdt	65	Julius Muhl	50
H. Wade	63	Roy Vosberg	45
H. F. Kuhlman	60	J. F. Kuhlman	33
W. J. Bleuer	58	J. Arp	43

Davenport Target—1 shot—Possible 25

Ed. Muhl	24	C. Jansen	19
C. F. Denkman	24	H. W. Holdorf	18
E. L. Rutenbeck	24	J. Muhl	18
Wm. Muhl	23	H. Kraft	17
E. C. Beyette	22	Julius Arp	14
H. F. Kuhlman	22	J. F. Nabstdt	12
G. Muhl	22	R. Vosberg	11
H. L. Frazier	21	H. E. Wade	10
Emil Berg	21	W. Lundberg	7
E. Rutenbeck	21		

Five-Shot Match—Possible 125

C. Jansen	116	W. Lundberg	107
G. Muhl	114	E. Rutenbeck	105
Ed. Muhl	113	H. W. Holdorf	103
C. F. Denkman	113	H. F. Kuhlman	102
Wm. Muhl	111	H. E. Wade	101
R. Vosberg	111	J. F. Nabstdt	101
J. Muhl	111	H. Kraft	91
E. L. Rutenbeck	110	W. Bleuer	99
Emil Berg	110	Jul. Arp	81

Man Target—Possible 60

E. L. Rutenbeck	57	R. Vosberg	51
Ed. Muhl	57	Emil Berg	50
C. Jansen	57	E. Rutenbeck	49
J. Muhl	56	W. Muhl	49
G. Muhl	56	W. J. Bleuer	49
H. Kraft	55	H. W. Holdorf	47
W. Lundberg	55	J. Arp	39
H. L. Frazier	54	H. F. Kuhlman	33
C. F. Denkman	53	J. F. Nabstdt	33
H. E. Wade	52		

People's Target—Possible 75

Ed. Muhl	74	R. Vosberg	66
C. F. Denkman	70	E. L. Rutenbeck	65
W. Muhl	70	H. F. Kuhlman	63
E. Rutenbeck	69	H. Kraft	62
C. Jansen	68	Julius Arp	61
H. L. Frazier	68	H. W. Holdorf	61
H. Muhl	68	H. E. Wade	60
Emil Berg	68	J. F. Nabstdt	58
G. Muhl	67		



(A Unit of the National Rifle Association devoted to teaching every boy and girl in America the safe and accurate handling of the rifle.)

Conducted by H. H. Goebel

National Junior Championship Matches At Camp Perry—Aug. 27 Through Sept. 1

THE enrollment for the matches last year totaled exactly 41 individuals. Although the ages of entrants ranged from 6 to 17 years, several of this number had never fired a rifle before and were not old enough to absorb sufficient instruction to permit them to enter the scheduled matches which were fired on the official Junior Rifle Corps five-bull's-eye target. These younger entrants, however, were given an opportunity to qualify for the Junior Rifle Corps medal awards.

In order to make the National Championship Matches all that they should be, an age limit of entrants has been established for this year. Those below 12 years of age will not be registered in the events scheduled to be conducted. Distinctive matches with ample instruction are scheduled for each day. Time will not permit the added coaching and instruction that all beginners need. It has been learned through experience that the interest and progress of the shoot are retarded by having an untrained group attached to the range program.

Although the previous plan of classification as to daily scores or scholastic standing for the preliminary matches worked smoothly, daily scores vary and classification on this basis works an injustice to the younger ones who shoot well, while giving more credit than is deserved to the older boy who shoots so poorly that he finds himself in the lowest class and yet may win a prize which he does not deserve. For this reason classification on a score basis has been eliminated. The Junior matches being open to members between the ages of 12 and 19, two distinct groups will fire the identical course daily. The A group will consist of those 16 through 18, and the B group 12 through 15. These groups will receive the same instruction throughout the week and compete in the daily matches. In the individual championship match which will be conducted on the final day all age classifications will be eliminated. The best four-position shot in camp will be determined the National Individual Champion.

The conditions and program for the week follow:

Open to: Any individual or club member of

the N. R. A. Junior Rifle Corps 12 years of age or over.

When fired: August 27 through September 1.
Entrance fee: \$1. (This includes all match events and Junior membership in the National Rifle Association.)

Targets: N. R. A. J. R. C. Official five-bull's-eye targets only.

Range: Fifty feet.

Rifle: Any .22-caliber rim-fire.

Ammunition: Any .22-caliber rim-fire.

Sights: Any metallic.

Positions: Prone, sitting, kneeling and standing. (See course of fire.)

Classifications: Competitors will be classified into two groups by ages for the daily matches. The youngest group—12, 13, 14 and 15 years; the older group—16, 17 and 18 years.

Group A, 16 through 18 years.

Group B, 12 through 15 years.

Age classifications will be eliminated for the National Individual Championship on the final day.

Prizes: One silver and two bronze medals to winners in each group in each daily match. One gold, one silver, and one bronze medal to three high in the National Individual Championship Match.

Assembly: Camp will assemble promptly at 8 o'clock each morning, when orders for the day will be read, with special announcements including the standings in each of the daily matches. Each morning before going to the range one hour will be devoted to instruction.

Ranges open: 9:30-11:30 a. m., 2-4:30 p. m.

MONDAY, AUGUST 27

Organization into groups, explanation of object, purpose and membership of the N. R. A. Junior Rifle Corps, and brief outline of week's program. The remainder of the day will be devoted to instruction, including care and cleaning of the rifle, explanation and demonstration, sighting and aiming, practice work including the gun sling, taking up of slack, breathing, general rules and positions, trigger-squeeze, sight adjustment, range rules, and safety precautions. Time permitting members will be allowed on the range for practice and medal qualifications.

TUESDAY, AUGUST 28

Course of fire: All contestants in each group will fire the same course, 30 shots for record, prone (3 five-bull's-eye targets, two shots in each bull's-eye).

Prizes: One silver and two bronze medals to the three high places in each group.

Range work: Individual medal qualifications.

WEDNESDAY, AUGUST 29

Course of fire: All contestants will fire the same course, 40 shots for record—20 shots prone and 20 sitting.

Prizes: One silver and two bronze medals to the three high places in each group.

Range work: Individual medal qualifications.

THURSDAY, AUGUST 30

Course of fire: All contestants will fire the same course, 30 shots for record—10 prone, 10 sitting and 10 kneeling.

Prizes: One silver and two bronze medals to the three high places in each group.

Range work for beginners: Individual medal qualifications.

FRIDAY, AUGUST 31

Course of fire: All contestants will fire the same course, 40 shots for record—10 shots prone, 10 sitting, 10 kneeling and 10 standing.

Prizes: One silver and two bronze medals to the three high places in each group.

Range work: Individual medal qualifications.

SATURDAY, SEPTEMBER 1

(National Individual Championship)

Open to: All members of the N. R. A. Junior Rifle Corps.

Course of fire: All contestants will fire the same course, 40 shots for record—10 prone, 10 sitting, 10 kneeling and 10 standing.

Prizes: Gold medal to the winner, with title National Individual Champion. Silver and bronze medals to second and third places.

Novelty Matches: Time permitting special matches will be conducted daily, including crayon shooting, animal crackers, pupil in the bull's-eye, string-cutting, lighting matches, driving tacks, candle shoot, etc.

Camp games and sports: There is ample time after the matches for sports, games and swimming before dinner. Members will be given opportunity to qualify throughout the week for Junior Rifle Corps medal decorations.

We believe that this new arrangement will meet the approval of all Junior contestants. The plan takes in the four positions, although the open shoot for both groups will be prone only. With additional instruction in the sitting position the prone, sitting match will follow. Instruction will then be given for the kneeling position, followed by a prone, sitting and kneeling match. On the fourth day standing will be added when a four-position match will be conducted for each group. On the fifth day age restrictions will be eliminated for the National Individual Championship.

BIWEEKLY MATCHES

THE plan of biweekly team matches which started last September in short series with classifications according to team shooting strength have been most successful. Previous to this plan matches were conducted on a handicap basis, the teams determining their possible and then shooting for it. Teams that overshot their possible lost two points for each point over, thereby lowering their true score. This arrangement gave each team entered an even chance of winning, but too much luck played an important part in the standing of the teams. Naturally the better shooting outfits lost interest, as they were not given full credit to which they were entitled.

In the opening series of seven matches conducted from September through December, 42 teams entered, representing 34 institutions. The Western High Boys' Team, of Washington, D. C., Fresno High, of Fresno, Calif., and the Northwestern High, of Detroit, Mich., finished in the above order in the select division for the first series. The Tulsa Y. M. C. A. Team, of Tulsa, Okla., the Lewis and Clark High School's second team, of Spokane, Wash., and the Porterville Union High School, of Porterville, Calif., carried off honors in the B Division. The C Division winners were the John Marshall High School, of Richmond, Va., the Wilby High Boys' Team, of Waterbury, Conn., and the Wilby Girls' Rifle Team, of Waterbury, Conn.

The second series started in January, and the matches were completed in March. The plan continued to hold the interest of the teams entered in the first series and in addition several newcomers were entered. In this series 84 teams were entered, representing 67 institutions. The Western High Boys, of Washington, D. C., again led the field, being closely followed by the Fresno High School's first team of Fresno, Calif., and the first team representing the Kemper Military School, of Bonnville, Mo. Central High, of Newark, N. J., the Ridgewood High, of Ridgewood, N. J., and the Y. M. C. A. team at Chicago, Ill., finished in order in the B Division. The Y. M. C. A. second team of Great Falls, Mont., the Luther High, of Luther, Calif., and the Bonita Union High School, of La Verne Heights, Calif., finished in their respective order in the C. Division. Trophy cups were awarded the winners in each series.

At this writing five matches have been completed, the Fresno High School Team, of Fresno, Calif., having the edge on the Western High Boys. Again there is a noticeable increase in the number of entries. One hundred and four teams are entered, representing 84 clubs in 28 States. As there are special awards for teams making the highest aggregate total of credits for the three series, the competition is extremely keen.

These biweekly matches in short series with trophies for the winners in their respective divisions with special awards for

the high teams at the close of the contest will again be conducted during the 1928-29 season. The first matches will be conducted from October through December, the second series January through March, and the third series April to June. The entry fee will amount to one dollar per team for each series. These funds will be used for the purchase of suitable trophies for presentation to the winners. The majority of teams will disband temporarily for the summer months, but we will look for greater activity on the part of affiliated clubs in these team matches in the early fall.

BULLETIN NO. 5
DIVISION A

Team and address	Score	Points	Total points	Total pts. per series
1. Fresno High, 1st, Fresno, Calif.	499	300	1,500	4,740
2. Kingswood School, W. Hartford, Conn.	497	270	1,350	3,270
3. Fresno High, 2nd, Fresno, Calif.	495	240	1,230	1,960
4. Western High, Boys, Washington, D. C.	492	210	1,140	4,650
5. Fresno Tech, 1st, Fresno, Calif.	487	180	960	1,650
6. Iowa City High, Iowa City, Iowa	487	180	600	600
7. New Trier High, Wilmette, Ill.	486	150	300	2,370
8. Ridgewood High, Ridgewood Hill, N. Y.	483	120	830	1,970
9. Western High, Girls, Washington, D. C.	480	90	450	1,740
10. Arsenal Tech J. R. C., Indianapolis, Ind.	479	60	360	360
11. Fresno Tech, 2nd, Fresno, Calif.	479	60	400	700
12. Evanston Twp. High, Evanston, Ill.	476	30	30	1,140
13. Ridgewood High, 1st, Ridgewood, N. J.	473	...	120	1,020
14. Blodgett Voc., 1st, Syracuse, N. Y.	473	...	260	500
15. Lewis and Clark Hi, 1st, Spokane, Wash.	465	...	120	1,260
16. Porterville Union, 1st, Porterville, Calif.	469	180	520	1,640

DIVISION B

1. *Crosby High, Waterbury, Conn.	473	200	600	980
2. Porterville Union, 2nd, Porterville, Calif.	469	180	520	1,640
3. Central High, Newark, N. J.	469	180	700	2,000
4. Centennial J. R. C., Chicago, Ill.	465	160	640	1,600
5. N. Tarrytown High, 1st, N. Tarrytown, N. Y.	463	140	210	930
6. Union Endicott High, Endicott, N. Y.	462	120	120	120
7. Turlock High, Turlock, Calif.	461	100	640	1,100
8. Central High, Bridgeport, Conn.	460	80	440	760
9. Blodgett Voc. High, 2nd, Syracuse, N. Y.	455	60	240	360
10. Monson Academy, Monson, Mass.	455	60	60	60
11. Roselle High, Roselle, N. J.	453	40	200	200
12. Stadium High, Tacoma, Wash.	451	20	110	200
13. Bonita Union High, La Verne Hts., Calif.	449	...	90	650
14. Y. M. C. A. Rifle Club, Wichita, Kans.	447	...	160	440
15. Cheyenne High, Cheyenne, Wyo.	439	...	...	...
16. Lewis and Clark, 2nd, Spokane, Wash.	432	...	...	940
17. Pawnee Rifle Club, 1st, New York, N. Y.	429	...	...	250
18. Pillsbury Academy, Owatonna, Minn.	427	...	190	190
19. Forest Park High, Baltimore, Md.	423	...	140	140

* Division A teams for match of June 9.

DIVISION C

1. *Madera High, Madera, Calif.	447	100	110	110
2. *Luther High, Luther, Okla.	442	90	140	940
3. Willard Hall School, Wilmington, Del.	439	80	150	280
4. Curtis High, 2nd, Staten Island, N. Y.	439	80	120	760

5. N. Tarrytown High, 2nd, N. Tarrytown, N. Y.	437	70	140	140
6. Cameron J. R. C., 2nd, Alexandria, Va.	431	60	290	290
7. Y. M. C. A., 1st, Great Falls, Mont.	427	50	210	830
8. Brooklyn Edison Boy Scouts, Brooklyn, N. Y.	419	40	190	190
9. Germantown High, Germantown, Pa.	413	30	50	50
10. Pawnee Rifle Club, 2nd, New York City, N. Y.	402	20	20	20
11. Norristown J. R. C., Norristown, Pa.	401	10	100	100
12. Lewis and Clark High, 3rd, Spokane, Wash.	383	...	10	780
13. Dundee High, Dundee, Ill.	344	...	...	...

* Division B teams for match of June 9.

EXPERTS AND DISTINGUISHED RIFLEMEN

THE names of twenty-one members were added to the long list of Experts during the past month. These members received their diploma and award in recognition of their achievement, completing the grades of Pro-Marksman, Marksman, Sharpshooter, nine bars in the prone, sitting and kneeling positions and one set of targets standing for Expert.

With the Distinguished Rifleman Bar for attachment to the Expert Medal the requirements are considerably harder. Six of our select Experts have made the grade, making their qualifying shots consecutively on each target in addition to firing them in the four positions.

EXPERTS

Leonard Kaufman, Delafield, Wis.
H. L. Luly, Boonville, Mo.
St. Clair Turk, Alexandria, Va.
John Hansell, Fort Sam Houston, Tex.
Mary Parkhurst, Washington, D. C.
George Gruner, Chicago, Ill.
William C. Ham, Richmond, Va.
James Martin, Davenport, Iowa.
Kenneth Bergins, Chicago, Ill.
James O'Hern, Van Nuys, Calif.
Alfred Lueders, Fort Wayne, Ind.
William Shaffer, Delafield, Wis.
Louis Jallade, New York City, N. Y.
Forbes Freeman, Los Angeles, Calif.
Ford Harbaugh, Wellington, Kans.
Fitzhugh Woodson, Richmond, Va.
Carter Haase, Richmond, Va.
Norman Tarantola, Chicago, Ill.
Harry Donaldson, Blacksburg, Va.
William Attleberry, St. Louis, Mo.
Joseph Seper, St. Louis, Mo.

DISTINGUISHED RIFLEMEN

Charles Potts, Faribault, Minn.
Douglas McDougal, Washington, D. C.
John Hansell, Fort Sam Houston, Tex.
John Humrichouse, Kankakee, Ill.
Robert Hulbert, Washington, D. C.
Philip Ronfor, Norwood, Ohio.

We have been requested to announce to our affiliated members that Riflemen Willoughby Sheane and Thomas Hungerford, of 2368 East Main Street, Bridgeport, Conn., would like to compete with any two-man team of the Junior Rifle Corps in the prone or sitting positions, or both. This is an excellent opportunity for those who are unable to participate in our program of team competition.

NATIONAL CAMP MATCH PLANS ANNOUNCED

THE National Camp Matches have always been considered the most popular contests conducted during the summer months. Each year these matches have grown until the camps have come to look forward to this yearly competition with considerable eagerness.

Last year 63 teams made returns in the boys' division, while 21 girl camps were heard from. West Virginia cornered the market on camp titles and trophies, for the brother-and-sister camps Greenbrier and Alleghany, respectively, annexed the camp championship titles. This season's match will indeed be a keen one. The New England camps are more determined than ever, while many new camps in the West and Middle West are to be considered in the running.

These matches being open from June 15 through August 6, every camp will have ample time to develop their shooters even though this may be their first year. Each year the personnel of a camp undergoes a change, so that all camps are very nearly on an equal footing when competing in these events.

Returns are due at National Headquarters not later than August 11. This will allow time for the engraving of the trophies and medals for presentation before camp closes.

MATCH CONDITIONS

Open to: Rifle teams from boys' and girls' summer camps which are affiliated and in good standing with the N. R. A. Junior Rifle Corps. A camp may enter as many teams as it wishes, but no camper may fire on more than one team.

Teams: A team will consist of not more than 10 or less than 5 campers. Boys' and girls' teams will compete in separate divisions of the Summer Camp Matches.

Entries: Camps may enter these matches and receive match material as soon as they are properly registered with the N. R. A. J. R. C. for 1928.

When fired: Targets may be fired any time between June 15 and August 6, 1928.

Course: Twenty record shots per man in two stages, prone position. The scores of the 5 highest members of a team will count as the team's total score.

Targets: Twenty official N. R. A. J. R. C. 50-foot five-bull's-eye targets will be mailed to each team. Each member of a team will fire his or her record shots on two match targets, 2 shots at each bull's-eye or 10 shots at each target.

Distance: Fifty feet from firing point to target.

Rifles: Any small-bore firing any .22-caliber rim-fire ammunition.

Sights: Any metallic.

Witness: All firing must be personally witnessed by the camp counselor who is in charge of rifle-shooting or some one appointed by the camp director.

Returns: All 20 targets fired or unfired for

each team must be completely filled out and returned to National Headquarters on or before August 11, 1928.

Prizes: The team winning first place in both the Boys' and Girls' Divisions will receive trophies and the title "National N. R. A. J. R. C. Camp Champions 1928." Members of winning teams will be awarded special medals.

NEW YORK PUBLIC SCHOOLS ATHLETIC LEAGUE ANNUAL RIFLE MATCHES

THE Twenty-First Annual Team Matches and Individual Championship Match of the New York Public Schools Athletic League have been brought to a successful close. All matches were held on the league's 50-foot range. Twenty teams of six men each took part in the four team matches, firing strings of 10 shots standing and 10 shots prone. The Brooklyn Technical High School Rifle Team won the du Pont Match with a 6-man team total of 1,042. Thomas Jefferson High School followed with 1,007, and Morris High School finished third with 1,005.

In the Peters Match, Morris High School led the field with 1,009. Thomas Jefferson High School again finished second with 998, being followed by the Brooklyn Technical High School with a score of 984. The Morris High School repeated in the following event, carrying off the Winchester Match with a score of 1,055. Brooklyn Technical High School bettered its standing by placing second with 1,023. Thomas Jefferson High School finished third with 1,019.

Thomas Jefferson High School carried off honors in the New York State Rifle Association Match, scoring 1,063. Brooklyn Technical High School placed second with 1,020, and the Morris High School placed third with 1,013.

For the final individual match the thirty high aggregate scores of the team matches qualified. In this match the course of fire consisted of 15 shots standing, followed by 2 sighters and 15 for record, prone, and 10 shots for record sitting. The scores were added to those made in the team matches. The highest in this individual championship were the following:

Name and address	Score
1. Andrew Pierson, Cromwell, Conn.	400
2. Fred Schulz, Chicago, Ill.	399
3. Gail Evans, Steubenville, Ohio	398
4. Lester Jeffrey, Jr., Fresno, Calif.	397
5. Junior T. Imler, Phoenix, Ariz.	396
6. Perry J. McKay, Miles City, Mont.	395
7. David S. McDougal, Washington, D. C.	395
8. Douglas McDougal, Washington, D. C.	395
9. Philip Ronor, Norwood, Ohio	393
10. Richard Hanson, Fresno, Calif.	392
11. Willoughby Sheane, Bridgeport, Conn.	392
12. William Schroeter, Clayton, Mo.	392
13. Theodore Turnage, Jr., Farmville, N. C.	392
14. Thomas Bryant, Madera, Calif.	391
15. Donald Wilson, Chicago, Ill.	391
16. John Hansell, Fort Sam Houston, Tex.	390
17. R. H. Minnery, N. Tarrytown, N. Y.	390
18. Milton Stork, Richmond Hill, N. Y.	390
19. William Davis, Washington, D. C.	389
20. William Shaffer, Delafield, Wis.	389
21. Lawrence O'Toole, Fresno, Calif.	388
22. Harry Burgess, Jr., Syracuse, N. Y.	388
23. Oscar Ivey, Fresno, Calif.	388
24. Lawrence Wilkins, Norwood, Ohio	388
25. Paul Farnett, St. Paul, Minn.	387
26. Allen Hood, Douglas, Ariz.	387
27. Jack Bartram, Fresno, Calif.	387
28. Allen Loomis, Fort Dodge, Iowa	387
29. Joseph Cascone, Brooklyn, N. Y.	386
30. Andrew Storozuk, Newark, N. J.	385
31. Lewis Christman, Denver, Colo.	385
32. A. J. McGuire, Boonville, Mo.	385
33. Virginia Sheffield, Washington, D. C.	384
34. Leslie Kammerer, Chicago, Ill.	384
35. Floyd Turner, Fort Worth, Tex.	383
36. Leo Pfeffer, Bronx, N. Y.	382
37. Perry MacNeal, Forest Hills, N. Y.	382
38. Ara Kaligian, Fresno, Calif.	382
39. John Gordon, Ridgewood, N. J.	382
40. John Van Dyke, Sioux City, Iowa	381
41. Henry Weidemann, St. Louis, Mo.	381
42. Ed. Foy, Fresno, Calif.	381
43. Royce Burgess, Syracuse, N. Y.	381
44. Robert Allabough, Ridgewood, N. J.	380
45. Hampton Weed, Porterville, Calif.	380
46. William Green, Waterbury, Conn.	380
47. Rodney Risley, Pleasantville, N. Y.	380
48. Charles Measurac, Richmond Hill, N. Y.	380
49. Frank Everett, Coctoe, N. C.	379
50. Herman Knickerbocker, Endicott, N. Y.	379
51. Joseph Arnold, Glen Rock, N. J.	379
52. George Elliott, San Luis Obispo, Calif.	379
53. Robert Guenther, Fort Wayne, Ind.	379
54. Frank Mugle, Wilkes-Barre, Pa.	378
55. Wesley Hanner, Chicago, Ill.	378
56. Harry Lindsay, Brooklyn, N. Y.	378
57. Frank Wilkins, Chicago, Ill.	378
58. Otis Campbell, Detroit, Mich.	377
59. E. A. Kiesling, Brooklyn, N. Y.	377
60. Andrew Comein, Chicago, Ill.	377
61. Charles Sumner, Roselle, N. J.	377
62. Paul Hudson, Kittanning, Pa.	377
63. Roy Johnson, Fort Smith, Ark.	377
64. S. Y. Roth, Bonnville, Mo.	377
65. David Evans, Faribault, Minn.	377

ANDREW PIERSON WINS JUNIOR CHAMPIONSHIP

IN THE town of Cromwell, Conn., lives a young man who is destined to become one of the finest shots in the country if his work in the Junior Rifle Corps may be used as a criterion on which to base such a statement. Last year at the close of our National Individual Championship Match it was found that Andrew Pierson had submitted the highest score. This was a four-position match, Pierson scoring 386 out of a possible 400, submitting possibles in the prone and sitting positions. Again this year the same boy has submitted a perfect score of 400. The match was conducted in four stages, prone. When it is realized that there were 351 entries, representing practically every State in the Union, the gold medal in recognition of the achievement is an award to be proud of.

Pierson also ranked in first place with a score of 399 in the Individual Scholastic Match completed last February.

Second and third prize medals, silver and bronze, were awarded to Fred Schulz, of Chicago, Ill., and Gail Evans, of Steubenville, Ohio, respectively. Schulz was one point down from the champion, submitting a score of 399, while Evans' score was 398.

The contestants that submitted returns are listed below according to rank. This event will go down in history as one of the finest matches conducted by the Junior Rifle Corps. You have all had a hand in making it a success and National Headquarters extends its appreciation and congratulations.

NATIONAL INDIVIDUAL CHAMPIONSHIP 351 ENTRIES

Conditions: 40 Shots prone.

Name and address	Score
1. Andrew Pierson, Cromwell, Conn.	400
2. Fred Schulz, Chicago, Ill.	399
3. Gail Evans, Steubenville, Ohio	398
4. Lester Jeffrey, Jr., Fresno, Calif.	397
5. Junior T. Imler, Phoenix, Ariz.	396
6. Perry J. McKay, Miles City, Mont.	395
7. David S. McDougal, Washington, D. C.	395
8. Douglas McDougal, Washington, D. C.	395
9. Philip Ronor, Norwood, Ohio	393
10. Richard Hanson, Fresno, Calif.	392
11. Willoughby Sheane, Bridgeport, Conn.	392
12. William Schroeter, Clayton, Mo.	392
13. Theodore Turnage, Jr., Farmville, N. C.	392
14. Thomas Bryant, Madera, Calif.	391
15. Donald Wilson, Chicago, Ill.	391
16. John Hansell, Fort Sam Houston, Tex.	390
17. R. H. Minnery, N. Tarrytown, N. Y.	390
18. Milton Stork, Richmond Hill, N. Y.	390
19. William Davis, Washington, D. C.	389
20. William Shaffer, Delafield, Wis.	389
21. Lawrence O'Toole, Fresno, Calif.	388
22. Harry Burgess, Jr., Syracuse, N. Y.	388
23. Oscar Ivey, Fresno, Calif.	388
24. Lawrence Wilkins, Norwood, Ohio	388
25. Paul Farnett, St. Paul, Minn.	387
26. Allen Hood, Douglas, Ariz.	387
27. Jack Bartram, Fresno, Calif.	387
28. Allen Loomis, Fort Dodge, Iowa	387
29. Joseph Cascone, Brooklyn, N. Y.	386
30. Andrew Storozuk, Newark, N. J.	385
31. Lewis Christman, Denver, Colo.	385
32. A. J. McGuire, Boonville, Mo.	385
33. Virginia Sheffield, Washington, D. C.	384
34. Leslie Kammerer, Chicago, Ill.	384
35. Floyd Turner, Fort Worth, Tex.	383
36. Leo Pfeffer, Bronx, N. Y.	382
37. Perry MacNeal, Forest Hills, N. Y.	382
38. Ara Kaligian, Fresno, Calif.	382
39. John Gordon, Ridgewood, N. J.	382
40. John Van Dyke, Sioux City, Iowa	381
41. Henry Weidemann, St. Louis, Mo.	381
42. Ed. Foy, Fresno, Calif.	381
43. Royce Burgess, Syracuse, N. Y.	381
44. Robert Allabough, Ridgewood, N. J.	380
45. Hampton Weed, Porterville, Calif.	380
46. William Green, Waterbury, Conn.	380
47. Rodney Risley, Pleasantville, N. Y.	380
48. Charles Measurac, Richmond Hill, N. Y.	380
49. Frank Everett, Coctoe, N. C.	379
50. Herman Knickerbocker, Endicott, N. Y.	379
51. Joseph Arnold, Glen Rock, N. J.	379
52. George Elliott, San Luis Obispo, Calif.	379
53. Robert Guenther, Fort Wayne, Ind.	379
54. Frank Mugle, Wilkes-Barre, Pa.	378
55. Wesley Hanner, Chicago, Ill.	378
56. Harry Lindsay, Brooklyn, N. Y.	378
57. Frank Wilkins, Chicago, Ill.	378
58. Otis Campbell, Detroit, Mich.	377
59. E. A. Kiesling, Brooklyn, N. Y.	377
60. Andrew Comein, Chicago, Ill.	377
61. Charles Sumner, Roselle, N. J.	377
62. Paul Hudson, Kittanning, Pa.	377
63. Roy Johnson, Fort Smith, Ark.	377
64. S. Y. Roth, Bonnville, Mo.	377
65. David Evans, Faribault, Minn.	377

Name and address	Score	Name and address	Score
66. Oliver Jones, Oakland, Calif.	376	181. William Braddock, Jarbridge, Nev.	205
67. Betty Howes, Los Angeles, Calif.	376	182. Kelly Merwin, Lake Grove, L. I., N. Y.	180
68. John Morehouse, New York, N. Y.	376	183. Leon Wood, London, Ohio	180
69. Haldon Wilson, Davidson, N. C.	376	184. Ernest Hack, Bristol, Conn.	51
70. Leo Cohen, Bronx, N. Y.	375		
71. H. S. Cole, St. Louis, Mo.	374		
72. Harry Zalewski, Chicago, Ill.	374		
73. Sanders Holmes, Roselle, N. J.	374		
74. Walter Simons, Forest Hills, N. Y.	374		
75. Clinton Heath, Napoleon, N. Dak.	374		
76. Bernard Diamond, Fresno, Calif.	374		
77. Wallace Skinner, Dennisport, Mass.	374		
78. William Travis, Ridgewood, N. J.	373		
79. Thomas Orlando, Syracuse, N. Y.	373		
80. Louis Blumer, St. Louis, Mo.	373		
81. William Richardson, Porterville, Calif.	373		
82. C. M. Baker, Booneville, Mo.	373		
83. Leighton Hicks, Porterville, Calif.	372		
84. Ray DeRosier, Syracuse, N. Y.	372		
85. Charles Petersen, Richmond Hill, N. Y.	372		
86. S. C. Dawson, Alexandria, Va.	371		
87. William G. Nolan, New York, N. Y.	370		
88. William McKim, St. Louis, Mo.	370		
89. Frank Dufford, Newark, N. J.	370		
90. James Dietz, Washington, D. C.	370		
91. Charles Perry, South Mills, N. C.	370		
92. Floyd Nolan, Syracuse, N. Y.	369		
93. Ralph Lohrum, St. Louis, Mo.	369		
94. Mary Engel, Luther, Okla.	368		
95. Mike Engel, Luther, Okla.	368		
96. Meredith Mott, St. Louis, Mo.	368		
97. Millard Holtgrive, St. Louis, Mo.	368		
98. J. B. Dwyer, Washington, D. C.	368		
99. Kenneth Welch, Joplin, Mo.	367		
100. Myron Rice, Glen Rock, N. J.	367		
101. Robert Pearsall, Endicott, N. Y.	366		
102. Joseph Cochrane, Chicago, Ill.	366		
103. O. Wilcox, Ridgewood, N. J.	365		
104. Albert Voorhees, Syracuse, N. Y.	365		
105. Charles Manion, Jr., E. St. Louis, Ill.	365		
106. Harold Crowder, St. Louis, Mo.	365		
107. Fitzhugh Woodson, Richmond, Va.	365		
108. James Butterworth, Highland Park, Ill.	364		
109. Joseph Probst, Richmond Hill, N. Y.	364		
110. Charles Stephan, Richmond Hill, N. Y.	363		
111. Philip Sweeney, Ridgewood, N. J.	363		
112. John Wright, Syracuse, N. Y.	361		
113. Oliver Hardin, Moline, Ill.	361		
114. Alfred Stuart, Wilmington, Del.	360		
115. Frederick Doolittle, Brooklyn, N. Y.	360		
116. Robert Schlechter, New York, N. Y.	359		
117. F. Christopher Markham, Ypsilanti, Mich.	358		
118. Stuart Williams, Quantico, Va.	358		
119. William Whealon, Syracuse, N. Y.	358		
120. Rodney LaLanne, Porterville, Calif.	357		
121. Hyman Mattenberg, Roselle, N. J.	356		
122. H. L. Luly, Booneville, Mo.	355		
123. John Lemperle, Brighton Heights, N. Y.	355		
124. Alfred Melzig, Roselle, N. J.	355		
125. Donald Hossack, Porterville, Calif.	355		
126. Robert Schlaefler, Dundee, Ill.	354		
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NEW YORK STOCK EXCHANGE RIFLE TEAM

ALTHOUGH this has been their first experience with correspondence and telegraphic matches, the New York Stock Exchange Rifle Team has met with most pleasing results; so much so that they would like to extend their activities in this direction during the coming year's indoor season. Any of our affiliated clubs who are interested and would like good competition should write Mr. G. W. Robertson, of the Personnel Office, New York Stock Exchange, New York City.

In the matches fired this year the team has come out on top in 30 of the 37 events. One telegraphic match with the Portsmouth (Ohio) Y. M. C. A. resulted in a tie. All of these matches are ten-man team matches with the six high to count, shooting two sighters and ten shots for record in two positions, standing and prone.

MOSTLY PERSONAL

A LIVELY contested Father-and-Son Shoot was held by the Logan County High School Junior Rifle Club and the Sterling Rifle Club, which was composed of their dads. Members of both clubs fired 10 rounds, 5 sitting and 5 prone, the 10 high scores to count, and the Junior Club received a handicap of 10 points per man. The Senior Club scored 850, while the Juniors scored 749, which, together with their 100 points' handicap, made a total of 849 points. The score was so close that many of the Juniors have asked for another shoot to be conducted in the near future. The members of both clubs are enthusiastic over this competition, and Instructor Shaw, leader of the Junior Club, advises that there is a demand for such a shoot each week during the summer months.

The first and inaugural meeting of the John Marshall Junior Rifle Club, of Chicago, Ill., was held at the John Marshall High School, Saturday at 2 p. m., attended by all members and officers. After the formal opening a short talk was given by Instructor A. H. Jacobson on the "Object, Aim, Rules and Code of the N. R. A. Junior Rifle Corps," which was followed by the reading of the club charter and the presentation of same to the club. Cadet Capt. Morris Mantel was then called to the front, and the oath of office as president of the J. M. J. R. C. was administered. The new president took the chair and installed the remaining officers, instructing them as to what he expected of them in the performance of their respective duties.

After discussing future plans for the club, Instructor Jacobson gave an interesting talk on co-operation: "The John Marshall Rifle Club may be likened to one of many wheels in a factory. The business of this factory is to manufacture or turn out better riflemen. We members are but spokes in one of many wheels. Insignificant as individuals but all important as a unit. One weak spot would destroy the whole wheel. Each spoke must do its part. Each wheel or unit must do its share of work assigned to it. If an N. R. A. J. R. C. member should shirk from doing his bit the unit can not function properly. In conclusion I again remind you of the lesson taught to you as members of the R. O. T. C.—'In union there is strength.' Let's all put our shoulders to the rims of the wheel of progress and co-operation and make our club an organization to be proud of."

Final qualifying targets made by Ford Harbaugh were recently mailed in to Headquarters for his Expert Rifleman Medal and Pin. With these targets was the following letter from his dad: "Receiving the targets for Expert Rifleman made by my son Ford I feel that you will be interested in knowing of his handicap under which he does his shooting. Having lost sight of his right eye when six years old, he has continued to shoot right-handed, sighting with his good left eye. He has at all times used a rifle with a regular factory stock, and no alterations have been made to facilitate his sighting. As you no doubt know, this is a seemingly impossible way of sighting a rifle, but nevertheless he has been able to earn his Expert even under this handicap."

We at Headquarters congratulate Ford upon his patience and perseverance in earning this coveted honor.

The Oklahoma State Y Camp is now in full swing. We all remember Instructor B. V. Edworthy, who for several years sponsored the work at Camp Wood, of Elmdale, Kans. Instructor Edworthy is now directing the activity in Oklahoma and advises that his entire outfit, with the exception of two boys, have qualified for the Marksman Medal. One of these boys never handled a rifle before and the other is handicapped by defective eyesight. Already three bars have been awarded, and every adult is now qualified by instruction and shooting as an instructor and has served on the range.

Another new camp to join the ranks of the N. R. A. Junior Rifle Corps this year is Camp St. Johns, of Hancock, N. Y. Rev. G. A. Campbell, director of this camp, believes in getting the work under way early and has ordered quite a supply of medals, pins, and diplomas for presentation to qualifying campers, for which he has submitted payment in advance of shipment. From all indications this group will carry home many of the Junior Rifle Corps honors.

Civilian Director Civilian Marksmanship

Conducted by Col. J. M. Coward
Address: Director Civilian Marksmanship, War Department, Washington, D. C.

QUALIFICATION INSIGNIA

THIS office will issue qualification insignia to civilians firing in the National Individual Rifle and Pistol Matches who make the necessary scores. The scores required with the rifle are: Expert, 255; Sharpshooter, 230; and Marksman, 210. The scores required for the Pistol are: Expert, 240; Sharpshooter, 225; and Marksman, 210. These badges will be issued only to civilian competitors. C. M. T. C. and R. O. T. C. receive their badges from their respective corps area headquarters. The badges will be issued to those entitled as soon as possible after the firing of the respective matches. This gives the civilian shooter an opportunity to earn the standard Regular Army insignia as well as the chance to win a medal in these two matches.

NATIONAL MATCH RULES

THE Rules and Regulations for the National Matches this year have been published in Bulletin No. 13, War Department, 1928. Copies of this bulletin have been mailed to all rifle club secretaries. Any rifle club member who is interested should ask his secretary to let him see a copy. This bulletin does not give the N. R. A. Matches, but covers only the National Matches.

MODIFIED KRAGS

IN THE last issue of this magazine on this page there was a note to the effect that modified Krag rifles were available at Benicia Arsenal. This note was published before this office had been advised that the necessary Krag rifles to be cut down had arrived at Benicia. This office was told that they had been shipped. Taking into consideration that the probable time of arrival should have been about May 15, it was thought that a sufficient number would be converted by the time that the May issue was received by subscribers. There have been many things written as to what often happens to the plans of men, and this was another that went awry. But—and this is said hopefully—we are now informed that the shipment of Krags will arrive there about July 10. So if you have already sent in an order for one of these rifles, please be patient; or if you would rather have your money back, you may. We will never publish anything again until we are sure. If you could see the pile of orders you would realize why easily enough.

Those that wish to order one of these

cut-off Krags are requested to hold their orders until after July 15. The price will be \$3.50, with no packing charges. These Krags will be cut to carbine length, and have a Model 1903 front sight put on. They are right nice little guns, and anyone may order one, although they may have already purchased a Krag rifle at some other time.

ABOUT REQUISITIONS

A NUMBER of requisitions have been received recently that will have to be held for a short time until the yearly balances, etc., have been adjusted. This may cause you a short delay in receiving the supplies, but it will not be long, for every effort will be made to get out the supplies as soon as practicable.

RIFLE CLUB SECRETARIES

NOW is the time to get your list of names of all the members in order. This is especially necessary in case the club intends to fire any of the qualification courses. For, as we all know, the FULL name and the correct address of each firer reported must be shown. By full name is meant to have each name written out in full—as, for instance, James Wesley Brown. It is not sufficient to write James W. Brown. There may be quite a number of Browns in our files—as a matter of fact, there are. There can easily be quite a few James W. Browns, and even two or more James Wesleys, but seldom in the same town, unless one of them is a Junior, in which case, Mr. Secretary, put on the Junior.

Once in awhile some one of our friends will say that this full name requirement is foolishness. It may appear so to a few, but has been found to work out pretty well so far. This office wants to give everyone credit for everything that he does. If names are the same, with the same initials, and that is all that is given this office to go on, then confusion will result, for one J. H. Jones will get credit for what another J. H. Jones has done. If the full names Joseph Harrison Jones and John Harcourt Jones are entered, then no mistake will be made and each will get proper credit for the work performed and the qualifications won. So please remember to have the FULL name entered on qualification reports. If the full name is not given the reports will be sent back for correction anyway.

SHIPPING TICKETS

CLUB secretaries are requested to sign and mail to this office all shipping tickets and memorandum receipts as soon as possible after the arrival of the supplies listed thereon. These papers are necessary for the records of the club in this office, and if not sent in promptly, cause quite a little extra work in sending out requests for them. Time taken from the work of issuing stores makes it necessary to delay forwarding some other requisition, which delays some club in receiving their stores. So whenever a shipment of supplies is received, get out the corresponding shipping ticket and sign it and send it in as soon as possible.

SPORTERS AND CALIBER .22 RIFLES

AN AMPLE supply of the Springfield Sporting type rifle and the caliber .22, Model 1922, M1, is on hand to take care of all desiring to purchase either or both of these popular weapons. The price is \$46 for each, with a packing charge of \$1.34 for one, or \$1.65 if two of these guns are shipped together. Now is the time to order, so that you may receive your sporter in ample time for the fall hunting trip, or the M1 in time to take with you to Camp Perry, or for use in some of the coming fall small-bore matches.

CALIBER .22 CLEANING RODS

CLEANING RODS, caliber .22, in four sections, with tip 1½ inches in length, and revolving handle, are available. Tip is threaded to take brass wire or bristle brush. When joined together this rod is 3¾ inches long, 4 inches being in the handle. This rod can be used to clean the caliber .22 M1 rifle. The price is 25 cents, plus 25 cents packing charges.

USED NATIONAL MATCH RIFLES

A FEW used National Match rifles are for sale at \$35.48, plus \$1.34 packing charges. These rifles are in good condition, and have been used only at the National Matches. Anyone desiring to purchase one of this type weapon would do well to send in their order as soon as possible. The price of the new National Match rifle is \$40, plus the usual packing charges. This rifle is believed to be the most accurate and very best military arm produced anywhere, and no one can go wrong in purchasing it for general use in target practice as well as for hunting.

SMALL-BORE RANGES

A PAMPHLET recently published, known as T. R. 1340-B, "Construction of Small-Bore Target Ranges," should be obtained by anyone interested in building one of these ranges. The price is only 5 cents, and it may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. Do not send stamps. "Rifle Marksmanship" (TR 150-5 10 cents; 150-10, 5 cents) and "Pistol Marksmanship" (TR 150-20, 5 cents) may be obtained from there also.

Trade News

A NEW DEPARTURE IN SCOPE SIGHTS

THERE is now available a light weight, wide field, universal focus telescope sight that requires but little mechanical ability on the shooter's part. The new telescope is furnished attached and sighted in on the shooter's rifle all ready to use in the game fields with his favorite load. This will appeal to shooters who never change a sight adjustment from beginning to end of the hunting season, and particularly to the bulk of hunters who rarely ever attempt to zero or sight in their guns. The total cost is comparatively moderate.

This new sight has a number of unique features. The reticule is adjustable three ways—for windage, elevation, and the removal of parallax. After the initial adjustment for mid-range by the maker, it requires no further adjustment at any range. The familiar elevation boss on the tube of all other internally adjusted telescopes is conspicuously absent on this one. The mount is light, rigid, and of great strength, and its greatest width is less than that of the scope. This sight has an unusually smooth outline, with no projections of any kind on scope or mount to catch in the brush. The total weight attached is less than 15 ounces.

The makers, Belding & Mull, Philipsburg, Pa., have established a reputation on their readily adjustable telescope sight, and are making a radically new departure in this new fixed sight, which is named "The Hunter" to distinguish it from their familiar readily adjustable Marksman telescope and TH mount combination.

WELL-KNOWN COLLECTOR PRAISES SATTERLEE'S BOOK

BALA-CYNWYD, PA., May 15, 1928.

Mr. L. J. Hathaway,
c/o THE AMERICAN RIFLEMAN,
Barr Building,
Washington, D. C.

DEAR SIR:

I would appreciate your publishing the following:

I want to go on record as a lover and collector of American firearms, that all collectors, dealers and others interested in American arms should at once procure a copy of L. D. Satterlee's "Catalogue of Firearms." This book is more complete than a library of firearm books, and almost instantly any desired information on American arms can be had without floundering through a collection of books, catalogues and magazines.

The firearm public should take their hats off to Mr. Satterlee. Without a doubt he is the only philanthropist in this line that I have ever heard of. If Mr. Satterlee lives a hundred years, the firearm-lovers will never be able to repay him for his untiring efforts in their behalf. Since obtaining my copy, there has not been a day I have not referred to it.

Now collectors, dealers and firearm-lovers,

show your appreciation by sending for a copy.

Very truly yours,

S. H. CROFT.

NEW BELDING & MULL RELOADING TOOL FOR POPULAR BOLT-ACTION RIFLE CALIBERS

BELDING & MULL are now furnishing a new version of their familiar Model 26 Straight-line Reloading Tool. The new Model 28 tool has the bullet-seater incorporated in the lever tool, interchanging with the neck die, and the seating screw interchanges with the expanding plug. The bullet is seated by starting it in the case mouth and then forcing the cartridge into the seating die, as in neck-sizing. Seating depth is adjusted by a knurled nut at the end of the seating screw, which protrudes at the opposite end as shown in the cut.

This Model 28 is a complete reloader, covering decapping, repriming, neck-reducing, neck-expanding, and bullet-seating. There is also an extra head for pulling bullets from loaded cartridges without damage to the components. A larger base is provided on this new Model 28 to facilitate its use in a bench vise (or when screwed to a support) in the vertical position as a bullet-seater or bullet-puller.

Old Model 26 parts are interchangeable in the new tool, and extra bullet-seaters are available for multicaliber use. The price is the same as that of the Model 26 tool. Because the new bullet-seater is not designed to crimp case necks, the Model 28 is furnished only for bolt-action rifle calibers.

THE SHOP OF GRIFFIN & HOWE

ONE of our officials recently visited the shop of Griffin & Howe, the well-known New York rifle-makers. It was the first visit in over two years, and a very noticeable growth in the organization and its business was observed. Both offices and shops occupy the entire second floor of a modern building. Here one can see one's pet rifle in all stages of making, from A to Z, including even the engraving, and can watch all the various operations. It would well repay every lover of the grooved barrel to visit this firm whenever he happens to be in New York.

The principal output of this firm is de luxe high-power, made-to-order sporting rifles. There were seen a great many of these in all stages of completion, including many most beautiful weapons that had just been finished for customers. One of their models, the .350 Magnum, is now having a most remarkable sale, it having proved to be what might be termed the one best all-around rifle for Africa. Also were seen several most beautiful single-shot rifles made up with the English Farquharson falling-block action, and fitted with telescope sights—certainly the very last word in single-shot rifles. It was surprising to note the great number of free rifles for international rifle-shooting that were

being made up. Evidently free-rifle shooting is becoming more popular all over the country if this is any evidence, and we think it is. Certainly this is a move in the right direction, for the only way we can hope to maintain our supremacy as riflemen abroad is to popularize the game in this country to the end that we may have a great many men skilled in this form of shooting from which to pick our team. The makings for most of these rifles consisted of imported Swiss Martini actions with set triggers, Winchester make of heavy .30-06 barrels fitted and chambered by Griffin & Howe, stocks also by Griffin & Howe, with their special adjustable aluminum free-rifle butt plate, Lyman No. 48 rear sight, and hooded-aperture front sight. The targets we were shown indicated the very highest degree of accuracy.

It was also noted that this firm have gone in very heavily in the matter of camp equipment, particularly for big-game hunters and explorers. Several members of the firm are big-game hunters of many years' experience, and as a result the equipment they offer is different, being of the kind used by old-timers and warranted to stand the racket, rather than the flimsy stuff usually seen.

Mr. P. L. Johnstone, formerly with Webley & Scott, of London, is now in charge of all the correspondence. We asked Mr. Johnstone particularly about this matter because we know what a problem it has always been to the small firm, constituting a very large part of their overhead. He informed us that it was perfectly enormous, but that, thanks to the two complete catalogues they had recently gotten out, and several very competent stenographers, he was now able to keep absolutely up to date on it.

[EDITOR'S NOTE.—Any of our friends who have an opportunity to visit firms engaged in the manufacture of arms or ammunition are invited to take notes and send us a brief account of what they saw for the information and benefit of all of our readers.]

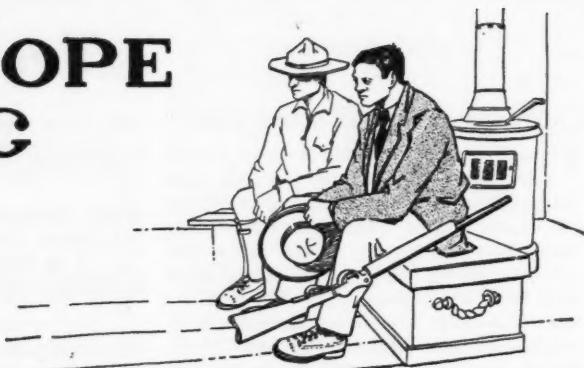
PETERS BALLISTIC EXPERT AWARDED INTERNATIONAL HONOR

A HANDSOME medal of honor has been awarded by the Royal Photographic Society of Great Britain to Capt. Philip P. Quayle, Chief of the Physical Laboratory of the Peters Cartridge Co.

This medal was tendered for the remarkable pictures that Captain Quayle has produced by means of spark photography, and is in recognition of his services in advancing this branch of photographic art.

Captain Quayle has been a pioneer in the photography of projectiles in the air, and is the first man to successfully photograph a shot string in flight. Some idea of his accomplishment can be realized when the infinitesimal accuracy required is revealed. In the series of photographs of shot in flight, for which the award was made, the shot strings were moving at the rate of 1,000 feet per second, and the time of exposure needed to successfully picture them was only two one-millionths of a second.

THE DOPE BAG



A Free Service to Target, Big Game and Field Shots—All questions answered directly by mail

Rifles and Big Game Hunting: Lt.-Col. Townsend Whelen

Shotgun and Field Shooting: Captain Charles Askins

Pistols and Revolvers: Major J. S. Hatcher

Every Care is used in collecting data for questions submitted, but no responsibility is assumed for any accidents which may occur.

Some Real Dope on Trajectory

WHAT is scale of figures for the drop of a bullet on ranges up to, say, 1,000 yards? I was under the impression that the height of trajectory meant the drop of bullet, but I see where you explain to some brothers that the drop of bullet is approximately four times the trajectory. Is this correct for all ranges up to 1,000 yards—for instance, if with a 54 Winchester .30-06, shooting the 150-grain service or the new 172-grain M1, a man has his sights (48W) set for 100 yards and without changing elevation shoots at the same size bull's-eye at, say, 800 yards. The question in my mind is, how much below the bull will the bullet strike, or how much higher would he have to shoot (judging the distance) in order to hit the target? This information is wanted mainly for hunting and miscellaneous shooting, but of course would not be accurate for close target work.

What is the height of trajectory for the 150-, 172-, 180-, and 220-grain bullets for ranges from 100 to 1,000 yards. If there is but very little variation in these different bullets, one reading at the different ranges will do. Remington folder gives it for their bullets up to 500 yards.

Where in the path of a bullet is the point of maximum energy, or at what distance from the muzzle does the bullet have the greatest striking power and penetration? I was under the impression that the greatest power of a bullet was at or very close to the muzzle, but in the musketry and rifle platoon training, by the Camp Benning (Georgia) School Press of 1922, which a friend of mine has, it shows a bullet having greater penetration energy about 200 yards from the muzzle, and then begins to fall off and decreases as it gets farther away. They show a penetration in solid oak of 12 inches at 50 feet, and at 200 yards a penetration of 28 inches. What is your explanation of this, and if this is correct, why is it? What is the velocity and energy of the .375 Hoffman?—W. E. G.

Answer (by Colonel Whelen). The only way to make you clearly understand the problems that you present about trajectory without having to write a complete textbook on exterior ballistics to you is to get you to thinking and working in minutes of angle of elevation, and figuring out your problems by simple proportion.

Ballisticians and ordnance engineers always speak of elevation in terms of minutes of angle, meaning the angle at which the rifle barrel must be inclined upward over the zero at which the bullet will strike an object very close by. In other words, if a certain direction is needed to be given to a rifle barrel to enable it to hit a certain object at 12 feet, the muzzle must be inclined upward at a certain angle from this to cause the bullet to strike a certain object in the same line as the first object, but at 200 yards. This extra elevation to overcome the drop of the bullet at long ranges is called the angle of elevation. The sight readings are determined in minutes of angle, but for convenience are marked on the sight leaf in hundreds of yards. I hope that I have made myself plain.

Now for practical purposes a minute of angle subtends 1 inch at 100 yards, 2 inches at 200 yards, and so on—that is, an inch per hundred yards of range. That is, if you are shooting at 200 yards, and hitting in a certain spot, and you then raise your rear sight a minute of angle your shots will strike on an average 2 inches higher on the target. This must also be understood. Many sights are graduated on this principle. The Lyman No. 48 receiver sight, for example, has graduations for minutes of angle. All sights should be so graduated. It makes everything much simpler. The modern military marksman never attempts to set his sights by hand or by the graduations on the military sight leaf. He uses a little instrument called a micrometer sight-adjuster, which reads to minutes of angle, and his sight adjustment for any given range will be recorded in his scorebook as so many minutes of angle, not so many yards.

In the advertisements of P. J. O'Hare in this magazine you will see cuts of micrometer sight-adjusters for the Springfield rifle, and a little pamphlet which the Lyman Gun Sight Corporation will send you will explain the same principle as applied to the Lyman No. 48 sight.

The amount of elevation—that is, the angle of elevation necessary to give to the barrel of a rifle to enable it to strike an object at long range—depends upon the muzzle velocity of the ammunition and the ability of the bullet to overcome the resistance of the air—in other words, upon the

trajectory. A high-velocity ammunition requires less angle of elevation for long ranges than a low-velocity ammunition; a pointed bullet less than a blunt-nose bullet; a long, heavy bullet less than a short light bullet at the same muzzle velocity; a boat-tail bullet less than a flat-base bullet, particularly at the longer ranges. Thus with the Springfield rifle the following are the angles of elevation necessary up to 1,000 yards with the old service ammunition, Model 1906, with 150-grain flat-base bullet; and the new service ammunition, M1, with 172-grain boat-tail bullet:

Range, Yards	Angles of elevation in minutes	
	Model 1906, 150-gr. bullet	M1 172-gr. bullet
100	2.5	2
200	5.2	5
300	8.2	8
400	11.6	11
500	15.6	14
600	20.4	18
700	25.9	23
800	32.5	27
900	40.3	32
1,000	49.4	37

That is, if you are shooting at 500 yards with the Springfield, using the M1 ammunition, and you want to raise your sight for 600 yards, you raise it 4 minutes of angle, or you put a micrometer sight-adjuster on your rifle and raise it four graduations on the adjuster. Now, if you will remember that a minute of angle subtends 1 inch for each 100 yards, you will see that when your sight was adjusted right for 500 yards your rifle would have shot 24 inches low at 600 yards with this 500-yard adjustment, for with the 500-yard adjustment the sight is 4 minutes too low for 600 yards, and 4 minutes at 600 yards subtends 24 inches. Similarly, if you set your sights for 600 yards the rifle will shoot 20 inches high at 500 yards, for the 600-yard elevation is 4 minutes too high for 500 yards, and 4 minutes at 500 yards equals 20 inches. In a similar way you can get your mid-height trajectory. Three hundred yards is midway of 600 yards. How high will the bullet fly at 300 yards when the rifle is sighted for 600 yards? The 300-yard angle is 8; the 600-yard angle is 18. The 600-yard angle is 10 minutes higher than the correct 300-yard angle; therefore with the 600-yard angle the bullet will strike 10 minutes higher, and 10 minutes at 300 yards equals 30 inches. If you sight your rifle in accurately for 200 yards you at once have practically all the sight adjustments if you are using a Lyman No. 48 sight, or

a micrometer-adjuster on your rear sight, or a telescope sight with mountings reading to minutes of angle. Thus, if your 200-yard reading on the sight or adjuster happens to be at the figure 6, or 6 minutes, for 300 yards you raise it to 9, or three minutes higher on the target. If your sight adjustment for 200 yards is 6, and for 300 yards 9, then, as above, the bullet will strike 9 inches low at 300 yards if you use your 200-yard elevation at that range, or 6 inches high at 200 yards if you are using the 300-yard adjustment at 200 yards.

If you have the ordinary table of trajectory, such as is given in the catalogues of the arms and ammunition companies, and you see that your height of trajectory at 100 yards when shooting at 200 yards is 3 inches, then you know at once that your trajectory at short ranges at least is approximately the same as in the above tables, and if you will translate inches in these tables into minutes of angle you will have no trouble in solving any problem in trajectory.

Now we come to the matter of energy. Energy depends only upon velocity and weight of bullet. The velocity is greatest at a point several inches in front of the muzzle, because the muzzle blast of the gases accelerates the bullet for an inch or two after it leaves the muzzle. But for practical purposes we disregard this, as it amounts to a few feet only, and speak only of muzzle velocity. Energy is therefore always greatest at the muzzle. To determine the energy of any cartridge simply multiply the velocity by itself (square it), and then by the weight of the bullet, and divide 450240 into the result. The velocity and energy of the .375 Magnum cartridge for which you ask, for example, is:

300-grain bullet, M. V. 2,450 f. s., M. E. 4,000 ft. lbs.
270-grain bullet, M. V. 2,560 f. s., M. E. 3,924 ft. lbs.
235-grain bullet, M. V. 2,680 f. s., M. E. 3,750 ft. lbs.

It is true that in some substances a bullet of a certain type will penetrate deeper at a long range than it will at a shorter range. This is because the velocity and energy at the shorter range are such that the bullet deforms itself, and in its deformed shape does not penetrate deeply, while at longer ranges, where the velocity and energy are less, it maintains its shape, and the perfect sharp point penetrates in the substance to a greater depth.

THOSE BIG-BORE BLACK-POWDER RIFLES

I HAVE been a member of the N. R. A. for the past four years, during which time I have read with much interest and profit the fine advice and comment by yourself, Major Hatcher and Captain Askins. I am now coming to you with a question which I have heard discussed very little: "The use of the large-caliber rifle on big game."

My reasons for soliciting information on this question are—

1. I intend to purchase a gun of this type and I am at a loss to know the caliber which with the maximum factory load is accurate and delivers a blow sufficiently powerful at from 50 to 200 yards to stop the bear and deer found in the woods of northern Pennsylvania, and which at the same time can be hand-loaded for use on woodchuck, crows, hawks, etc.

2. I have tried to obtain information regarding a gun of this type from a number of men who are more or less familiar with various arms using high-velocity ammunition; but when I mentioned such calibers as the regular .38-40, .38-55, .40-65, .40-82,

.44-40, .45-60, .45-70, and .45-90, they shrugged their shoulders and their answer was, "Well, I don't know that I have really ever seen anything in print regarding such caliber guns and their characteristics."

I have enumerated a number of the larger bores as manufactured by Winchester, Marlin, Remington, etc., but possibly you have in mind others; so if you have you may consider them also. However, what I really want to know is your opinion of a gun of this type for big-game hunting, and what caliber in your estimation is best suited.

I believe a discussion of this question through the RIFLEMAN would be well received by a great many sportsmen throughout the country.—E. R. M.

Answer (by Colonel Whelen). You bring up a very interesting subject, and I will be glad to discuss it at length.

First of all, in order that we may have a little means of comparing the older black-powder weapons with the best of modern rifles, let us just record the degree of accuracy which can be obtained from the .30-caliber Springfield sporting rifle. A first-class modern rifleman, shooting at 200 yards from muzzle and elbow rest, will place a group of ten shots in about the following size circles, using best ammunition:

Inches
With telescope sight, or with cup disk in Lyman rear sight and with flat top post front sight dead black 4½
With iron hunting sights, that is, large Lyman aperture and gold or ivory bead front sight, on regular target.... 10
Same, but on target approximating game in coloration and background, about 14

Now having disposed of that we will tackle the large caliber problem.

The cartridges which you mention are all ample in power to kill both deer and bear up to 200 yards, provided that the bullet hits in a vital area. In this respect the more modern high-velocity cartridges are hardly any better because, the large-caliber cartridges killing neatly, no cartridge can do more.

But these cartridges are hardly satisfactory for large game at ranges over 150 yards, because the trajectory is high, and unless one estimates the range with uncanny accuracy, and knows his sight adjustment to a "Tee" for that distance, and sets his sights or holds over accordingly, he will usually score a miss or an unsportsmanlike wound by striking too high or too low. Let us therefore say that all these big-bore cartridges are 150-yard large-game cartridges.

The same pertains to their use on small game, only the target is smaller, and a much smaller error will cause a miss on small game. Thus at 100 yards an error of 25 yards in estimating distance and in setting sights might cause a complete miss on woodchuck or crows. Thus we may say that these rifles are 75-yard small-game weapons.

All these rifles may be said to give their finest accuracy with freshly hand-loaded black-powder ammunition, except possibly the .38-55. But if factory ammunition only is considered, then the low-power smokeless cartridges may be said to be best today.

The most accurate of all these cartridges is the .45-70-500 Springfield. The old .45-70 Springfield rifle gave quite a lot better accuracy than any of these rifles, considering only cartridges where the bullet was seated in the shell. Given a first class, trained rifleman, and freshly loaded .45-70-

500 black-powder ammunition, he could, firing in the prone position, keep a series of ten shots in about an 8-inch circle at 200 yards—this in rather damp, warm weather which was conducive to keeping the black-powder fouling in moist condition, free from cake. Today, with the best smokeless ammunition, I imagine that about a 12-inch group would be the limit. But of course even today an expert can hand-load the .45-70 cartridge to equal old-time accuracy. With this rifle there have frequently been groups of 4 inches recorded at 200 yards; but these were lucky groups. The reasons for the fine accuracy with this rifle and this good black-powder ammunition are several, and they are quite interesting in gauging the capabilities of other large-bore rifles. They are about as follows:

The long barrel of the Springfield. Sights far apart. A good peep rear sight, and a flat-top dead-black front sight, with small error of aim.

A barrel without any slots cut in it, and free to expand through its bands, with no forearm screwed to it.

A stock which was fairly well suited to steady holding.

A good gun sling to aid in steady holding. A long bullet which projected quite a distance outside of the case, thus making for the truing up of the bullet in line with the axis of the bore by the rifling before it was fired.

With black-powder rifles the larger bores seemed to be less cranky.

Accuracy such as this could hardly be obtained from a .45-70 Winchester, Model 1886, rifle, for example, mainly because of the lighter barrel, the many slots cut in the barrel, the shorter barrel, the shorter distance between sights, usually a gold, ivory, or bright bead front sight, a stock not so conducive to good holding, and no gun sling.

When we come to the other calibers you mention we find a bullet seated deeper in the case, with scarcely any of the bearing of the bullet projecting outside of the case, only the curved point or ogive. With such cartridges the bullet does not extend up into the rifling, and is not at all centered by the rifling before firing. The cartridge and its bullet lie in the bottom of the chamber, or in some position in the chamber into which they are forced by the spring of the extractor. It should be understood that the chamber is at least .005 inch larger than the cartridge; sometimes much more. So the bullet is not quite in line with the axis of the bore before firing, and in the jump from the case to the rifling the bullet is slightly deformed. The result of this and other minor causes is that groups at 200 yards will run from 12 to 18 inches, depending upon the cartridge and the rifle. They will be larger usually with cartridges like the .38-40 and .44-40. When smokeless powder cartridges with jacketed bullets are used the groups will be quite a little smaller because the jacketed bullet resists deformation better, and because there is no caking of the fouling with smokeless powder, but still even such cartridges will not quite equal the accuracy of the .45-70 Springfield with the best black-powder ammunition.

An exception to this may be some varieties of .38-55 smokeless ammunition with jacketed bullet, which may perhaps give a little finer accuracy than the old .45-70 Springfield. I am not sure of this because I have not fired such ammunition in late years in the .38-55, but my impression is that with some modern cartridges very fair accuracy can be had from the .38-55 rifle.

Now consider these groups on the

shoulder of a deer or a black bear, and also consider the inaccuracy due to the curved trajectory and the errors of estimation of distance and sighting, and I think you will see that these are all essentially 150-yard rifles on large game.

Suppose we take almost any of these rifles and sight it in to strike the exact point of aim at 100 yards. If you hold it true at that range and squeeze off perfectly, you get your deer or bear every shot. So see, at 150 yards, if you know the range fairly well and you hold about 6 to 10 inches high to allow for the drop of the bullet. Even the most modern rifle will hardly do any better. The modern weapon may shoot slightly closer to where you aim, but your old large-caliber weapon will shoot close enough. So we find them good rifles for thick timber on deer and bear.

Now let us come to small-game shooting. You are forced to use much the same cartridge on such game. There are cartridges made with lighter bullets and higher velocity, but as a rule they are not as accurate as the heavier bullet cartridges, and what you gain in trajectory you more than lose in accuracy. If you shoot at a woodchuck at what you think is 100 yards with sights adjusted for 100 yards, and it proves to be 125 yards, you will likely score a miss. So, too, if you allow for 25 yards on what happens to be a 100-yard shot. If you hit, then the big bullet makes a big hole and musses up things considerably. This may or may not be desirable, according to your viewpoint. With the .38-55 it is possible to hand-load with a light pointed bullet, used in the chamber only and not through the magazine, and with this bullet you can shoot grouse and squirrels and have something left for the table afterwards; but that is about the limit in small-game loads.

The "Ideal Handbook" gives full data for reloading most of these cartridges, and you will also find still more and more valuable notes on reloading these cartridges in Mattern's "Handloading Ammunition." For example, in the .38-55 you can probably get fine results with a hard alloy bullet sized to about .382 inch with the proper charge of du Pont No. 80 powder, no crimp, and case indented to prevent bullet receding into case.

With a light rifle you will probably find the recoil of the .45-calibers rather severe. A rifle for pleasant shooting with these calibers should weigh about 9 pounds. With the other calibers the recoil will be quite moderate.

One difficulty with all these rifles is that the stocks are so shaped and proportioned that they are not at all conducive to steady holding, except perhaps in the standing position. One can hardly assume the good, steady positions of the modern trained rifleman with them. They can most of them be restocked, however, so that they can be greatly improved in this respect.

I should say that, generally speaking, I think that a rifle on the following specifications would be the best for such use as you have in mind:

Winchester Model 1894 rifle, caliber .38-55; 24-inch round nickel-steel barrel without rear sight slot; half magazine, solid frame; Lyman No. 103 rear sight; gold bead front sight; pistol grip stock; full-sized shotgun butt plate, with 3-inch pitch; length of stock, 13 $\frac{1}{4}$ inches, drop at comb from line of 100-yard sight 1 $\frac{1}{4}$ inches; drop at heel 2 $\frac{1}{4}$ inches; sling swivels of Winchester detachable Model 1895 musket type attached to tip of fore arm and to butt stock 2 $\frac{1}{2}$ inches forward of toe. Comb of stock pushed as far forward as upper tang will permit. Ammunition should be hand-loaded; 255-grain grooved bullet; cast 1 to

16 tin and lead, sized to .382 inch; seated to standard depth without crimp; case indented to prevent bullet receding on powder; powder charge 16.4 grains' weight of du Pont No. 80 powder; or perhaps still better results might be obtained with a similar gas-check bullet with a powder charge not to exceed 20 grains of du Pont No. 80 powder. In fact, this last load would be my choice. I think that perhaps a skilled rifleman, also skilled at hand-loading ammunition, might from this rifle and this ammunition obtain results quite a little better than indicated previously in this article. In fact, he might almost equal modern weapons. It would be very interesting to experiment on these lines. It seems to me that the one great advantage of these low-power, large-bore rifles is that with proper care they have a barrel life three or four times that of the modern high-velocity rifle.

The indications are that perhaps a .38-25 Winchester, Model 1886, rifle on the same lines of the .38-55, ammunition also on the same lines, might do still better, but as it is now practically impossible to obtain such a rifle it is hardly worth while discussing it.

A SHOTGUN FOR RUFFED GROUSE

I WISH to select a gun best suited for ruffed grouse shooting in central Pennsylvania. What gauge, bore, and length barrel would be best adapted for this work; also what are the respective merits or disadvantages of the Winchester and Remington pump guns? I am 5 feet 7 inches tall and would like to choose the gun most apt to fit me.—J. W. F.

Answer (by Captain Askins). Winchester 16-gauge pump gun, quarter-choke 28-inch barrel; Browning sixteen, 25-inch barrel; double gun, 28-inch barrels, weight 6.10 pounds, improved cylinder, and modified choke. In Winchester pump and Remington pump the difference is not great, probably 6 inches is a little lighter. You do not need a 12 gauge for ruffed grouse; too heavy. Double gun, 14-inch stock 2 $\frac{1}{2}$, 1%, pump or automatics as they come in standard stock. Browning might be stocked to order 13 $\frac{1}{2}$ -inch stock. Remington 20 or Winchester 20 will fit you; but I'd prefer a 16, with 1 $\frac{1}{2}$ ounces of shot, where I had to cut through brush.

SIXTEEN-GAUGE PATTERNS

I HAVE used the 12-gauge gun exclusively, mostly the pump action, but feel that for upland shooting that gauge is unnecessarily heavy and have decided (principally through what you have said in various articles) that the 16 is about right; to be used also for ducks in view of the fact that I am not particularly interested in killing them at extreme ranges. For ducks in the 16-gauge, 30-inch full-choke barrels would be correct, would they not?

I have traded for a 16-gauge L. C. Smith with 26-inch barrels, this length to be used for quail, and am writing this letter for information I feel sure you can give me.

Is there any way you can tell the degree of choke in the Smith gun? I can not find it stamped upon the gun anywhere. Using Western Super-X shells, I fired a couple of patterns: range, 40 yards; 7 $\frac{1}{2}$ chilled shot. In the 30-inch circle the right barrel put 140 pellets and the left barrel 192 pellets. The shot were pretty evenly distributed within the circle, and any bird from quail up would have been fairly sure to have been hit within the 30 inches. Opening a shell, I counted 405 pellets.

Using 7 $\frac{1}{2}$ chilled, what is the shot load of the Super X? I imagine it is 1 $\frac{1}{2}$ ounces, but am not certain. I noticed, by the way, some indications of high pressure in these shells, the primer having flowed back to a small extent and the brass being split on the outside of the shells—that is, on a few of them. I noticed also that the shot shaved away considerable paper on the inside of the cases. I imagine, however, that is characteristic of the heavy loads.

What, in your opinion, should the gun show at 40 yards? From the information given above, do you consider the pattern satisfactory? Also, what is the correct distance to pattern a gun to be used on quail, and what per cent should it give? Perhaps also, you can tell me the degree of choke from the information furnished.

It is my intention to order a set of 30-inch barrels and also to restock the gun to suit myself, but before going ahead would appreciate any information or advice you can give me.—E. B. H.

Answer (by Captain Askins). I do not understand how you could get patterns so low with 405 No. 7 $\frac{1}{2}$ shot. Patterns with a good improved cylinder should run about 200, and with full choke 283.

Yes, Super X 16's are supposed to be loaded with 1 $\frac{1}{2}$ ounces of shot. This would normally run about 390 pellets to the load; so your pellets were a trifle small. Patterns you got were about what I'd expect to get with No. 6 shot, quarter choke and full.

Better send that gun back to the factory and see what is wrong with it. I think something will be found odd about the chambering—either chambered for a 3-inch case or a very short case; anyhow, something is wrong.

Patterns to be about right should run 200 to 225 for first barrel to 260-275 for second barrel, degree of choke being around 50 to 55 per cent first barrel, 65 per cent, or three-quarter choke, for the second barrel. Strictly for bird shooting patterns of 200 first and 240 second barrel would be close to right. My quail gun in 16-gauge patterns 230 to 250, both barrels the same; but most people would like one barrel closer.

Pattern your gun at 40 yards, 30-inch circle, so as to get a comparison with factory records. Improved cylinder will then be 45 per cent sometimes, or with some factories 50 per cent; quarter-choke 50 per cent, some factories 55; modified 60 per cent; three-quarter choke 67; full choke 70 to 75 per cent, depending on the gun and in less degree on the maker and the ammunition.

I suppose your gun, shooting as openly as it does now, would kill quail; but it would be better to shoot No. 8 shot in it.

Anyhow, you find out what is wrong with that pair of barrels the first thing.

HANDGUNS AND HOLSTERS

ONE thing I would like to know is where to write in order to be able to purchase a holster as described in the April AMERICAN RIFLEMAN; and also do they make shoulder holsters on this same order?

I have just sold a .44-40 New Service Colt, and was thinking of buying a single-action .44-40 Colt. Can one practice enough to be able to shoot one of these single-actions as fast as a double-action and as accurately? For me the double-action New Service .44-40 seems to have too hard an action. If buying a gun of this type what length barrel would you recommend for quick use and still accurate shooting—4 $\frac{1}{2}$, 5 $\frac{1}{2}$ or 7 $\frac{1}{2}$?

I have a .45 auto. Colt; but in a previous article in the magazine a man seemed to favor the .38 auto. more. I would like to know which gun has the most shocking power and is the least liable to jam.

I do not care for a light-caliber revolver, as I do not think they have the shocking power. I would surely appreciate your advice on this, and also the address for the holsters—G. W. R.

Answer (by Major Hatcher). I have not the address of the maker of the holster illustrated in the article on page 20 of the April RIFLEMAN. I believe, however, you can get this address by writing Mr. F. Theodore Dexter, 910 Jefferson Street, Topeka, Kans.

It is very easy, assuming you practice enough, to be able to shoot the single-action Colt as rapidly as you can shoot the double-action. In my opinion, the double-action feature is not very useful.

However, the double-action guns are easier to shoot accurately than the old single-action Army, because the parts are so made that when the double-action gun is used for cocking the hammer for each shot there is less disturbance of the aim when the hammer falls.

The single-action Army, however, has the most comfortable grip of any gun that has ever been produced.

In buying a single-action Army model, I would suggest the 5½-inch barrel. It is plenty long enough for accuracy, and at the same time it balances better than the 7½-inch.

In regard to the relative merits of the .38 automatic and the .45 automatic, I think the .45 is far superior. There are two reasons for this. One is the .45-caliber bullet is so much larger in size and so much heavier that it has much greater shock power. Another feature is that the .45 automatic Army model is far superior as to mechanism to the .38, and is freer from jams and troubles of all kinds. Moreover, the .45 has a better shape, has more natural pointing, and a better balance.

OLD AND NEW SINGLE-ACTIONS

WILL you kindly inform me if the Colt single-action Army revolvers with serial numbers below 160,000 are safe if used with modern black-powder loads, with smokeless loads, or with the Remington heavy loads? I do not remember of ever reading a statement definitely setting forth that they were or were not safe if used with factory loads, though mention is often made of the better grade of steel used in the later guns—M. D. M.

Answer (by Major Hatcher). The Colt single-action revolvers before 160,000 were intended for use with black-powder loads only. After 160,000, the steel in this gun was improved, and the test was changed to take care of modern smokeless loads.

The old guns were intended for pressures from 10,000 to 12,000 pounds, and the new guns are intended for pressures of 14,000 pounds or more. The new guns are, therefore, tested with test loads of 17,000 pounds, to be sure they are safe for use with 14,000-pound loads.

The chances are that the old-type gun will stand any factory load that is now put out for use in revolvers, but they were not intended either for smokeless loads or for the heavy loads similar to the Remington black-powder loads. These loads all give around 14,000 pounds breech pressure, whereas the guns were intended for loads giving 12,000, similar to the ordinary black-

powder load which is sold today, with the exception of the Remington load.

A GOOD NITRO SOLVENT

I WOULD appreciate it very much if you would give me the formula for making up nitro solvent to be used on revolvers and small-bore rifles after using nitro powder.

In my personal work and with the rifle club of this city I use from two to three quarts per year, and I think I can make it up in quantities and make it a good deal cheaper than purchasing in the usual two-ounce bottle. I can buy this formula through an ad in the RIFLEMAN for 25 cents, but do not know whether this fellow knows anything about a good formula, whereas I know that anything you tell me could be depended upon.—W. M. P.

Answer (by Major Hatcher). Replying to your letter of April 4, the following is the formula for an excellent nitro solvent:

Three pints sperm oil, 1 pint mineral turpentine, 1 pint astral oil, 1 pint acetone, and ½ pint amyacetate. The astral oil is a very pure kerosene, known as Pratt's kerosene.

A RINGED SHOTGUN BARREL

I HAVE a Marlin No. 17-S pump gun with a powder ring in the barrel, and its presence is very annoying, although it apparently does not damage the shooting qualities further than to make the pattern too close. It doesn't shoot anything good except No. 6 shot. What should I expect it to do if I cut the barrel off 2½ inches from muzzle?—H. J. S.

Answer (by Captain Askins). Any good gunsmith can remove the ring in that barrel by heating it and driving a mandrel through it that closely fits the bore. Try Marlins first—Marlin Arms Co., New Haven, Conn. They should be willing to do this. By cutting off 2½ inches, as you suggest, you will simply take all the choke out of that barrel and have a plain cylinder, good at 30 yards and under. You could have the barrel rechoked a bit then, but not to any such an extent as it is now and will be after the ring is driven out. After the heating it might be necessary to reblue the barrel.

ATTENTION, ALL READERS—
Colonel Whelen will leave for a big game hunt about September 1, and will be away until about October 15. Please do not send in any Dope Bag queries for him between those dates.

RELOADING THE .32-20 REVOLVER

I WOULD like to have what information you can give me in regard to reloading the .32 W. C. F. cartridge for the Smith & Wesson Revolver, in regular and heavy loads; also different types of bullets that can be used, also powder—D. L.

Answer (by Major Hatcher). The standard factory load for the .32-20 has a 115-grain bullet with 9 grains of Sharpshooter powder, giving 967 f. s. This is a compromise load, intended to be used in either rifles or revolvers. The revolver reloaders like the 100-grain bullet because they can get more speed out of it.

There are a number of good bullets made

for reloading this cartridge. One of them is the Ideal 3118, which weighs 115 grains. Another 115-grain bullet is Bond C311655. For a high-speed load, this same Bond bullet is made in a shorter length, weighing 90 grains, called C11500.

Belding & Mull make a very good 100-grain bullet, called 312100. They also make a 115-grain bullet, called 312114.

A very good powder for full loads in revolvers with these bullets is No. 80. For a full load with a 100-grain bullet, you can use 8½ grains of No. 80, which gives around 1,000 f. s. For the 115-grain bullet, the load should be reduced somewhat to about 6½ grains.

You may also get good results with Pistol Powder No. 5. For a low velocity or gallery load, use a 100-grain bullet with about 2½ grains of No. 5, which will give about 650 f. s. For a higher velocity load, use 5 grains of No. 5, giving 1,000 f. s.

PISTOL SIGHTS

WOULD appreciate it if you would advise me what sights you would recommend for a .22 Colt automatic and a .38 Colt automatic, 4½-inch barrel.

I have been using for several years the sights as issued by the factory, and I do not find them very satisfactory, if the light is the least bit bad.

I had in mind using an ivory front sight and a square Patridge rear sight. Would appreciate your advice.

The .22 automatic is used on fishing and hunting trips, and for target work. The .38 automatic is used as a car gun and for target practice.—P. P.

Answer (by Major Hatcher). It is my experience that you can not beat the Patridge type sight, and if you are going to shoot in dark places, such as in the woods, it is an advantage to have a gold or ivory bead for the front sight.

For the Colt .22, I would suggest that you try the Patridge sight furnished by the Colt company.

With the .38 pocket model, it is another question entirely, because this gun has fixed sights, and special front sights are more difficult to put on. However, any gunsmith can make a new front sight for this gun, as the old one is just pinned into the slide.

Of course the rear sight can be driven out sideways and a new one put in. A new rear sight can be obtained from Colt for 50 cents, and can be filed down to a square notch, if desired.

BISLEY AND S. A. ARMY COLTS

IS THE lock work of the Bisley model the same, or the same system, as the S. A. Colt?

Is the cylinder stop the same in both, or more serviceable (or less) in either?

And the same about the spring for the trigger and the cylinder stop?

And the same question about the "insides" generally of these two models.—H. G. S.

Answer (by Major Hatcher).

1. The lock work of the Bisley model is the same as that of the single-action Colt. The difference between the two models is mainly in the shape of the handle and the shape of the hammer.

2. The cylinder stop is the same in both.

3. The spring for the cylinder stop is also the same.

4. I believe this question is answered in No. 1.

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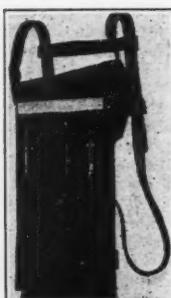
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CORROSION IN THE .22

I AM using Peters .22 long-rifle rustless semimokeless cartridges. Is the burned mixture of semimokeless powder and rustless priming that is covered up by lead fouling going to cause rust if the lead fouling is not removed? I know that if this burned mixture is left in large quantities in the barrel it will cause rust; but I want to know if that powder and primer from these Peters rustless cartridges will cause rust if only that which is covered by leading is left in the barrel. Will Chloroil take out lead and other metal-fouling? About what velocity will the above .22 long-rifle cartridges develop in a 22-inch barrel?—P. H.

Answer (by Colonel Whelen). I have yours of December 29. I have not the slightest doubt but that before the Peters Cartridge Co. placed their noncorrosive .22 rim-fire ammunition on the market they made both laboratory and practical tests that absolutely proved that the combined fouling of primer, powder, and lead would not cause rust. Moreover, it is probable that the combined fouling is to some extent a rust preventive. See article on noncorrosive primers in the November number of THE AMERICAN RIFLEMAN.

Lead is no problem at all in a .22-caliber rifle, the bore of which is kept in perfect

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condition. A tight flannel patch always removes the very few flakes that might get in. In an emergency cleaning with a brass wire bristle brush, and then setting the barrel away greased with mercurial ointment, should cure any case of leading in a good barrel.

What many people call "leading" in the .22-caliber rifle is not real leading, but a total ruination of the bore through lack of proper care at the proper time, the pitting of the bore, and of course the great accumulation of lead in such a bore as soon and every time it is fired. There is no cure for this except a new barrel.

Chloroil has no action whatever in removing lead. It is a solvent of potassium chloride. So also is water. Chloroil is the most perfect cleaner for rifles fired with the old potassium-chlorate primer. Hoppe's Powder Solvent No. 9 is probably a most excellent cleaner for rifles fired



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with the various noncorrosive primers, and I personally recommend that all real riflemen clean their barrels even when noncorrosive primers are used. But I do not believe that cleaning is nearly so necessary in this case, and I think that it is perfectly safe to leave a rifle uncleared for some time after firing, perhaps in some climates indefinitely. After cleaning with the above cleaners, the bore should be thoroughly dried, and then greased or oiled.

MODERN GUNSMITHING

By Clyde Baker

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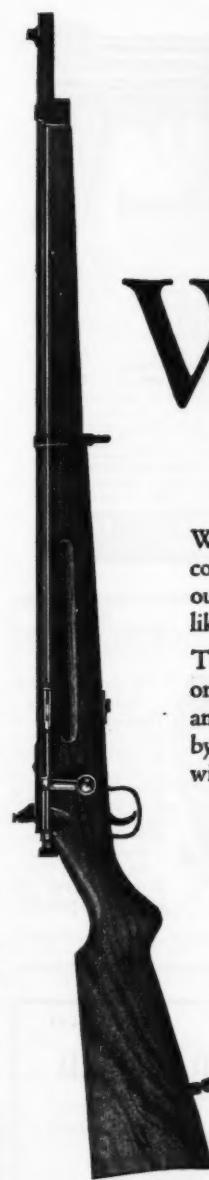
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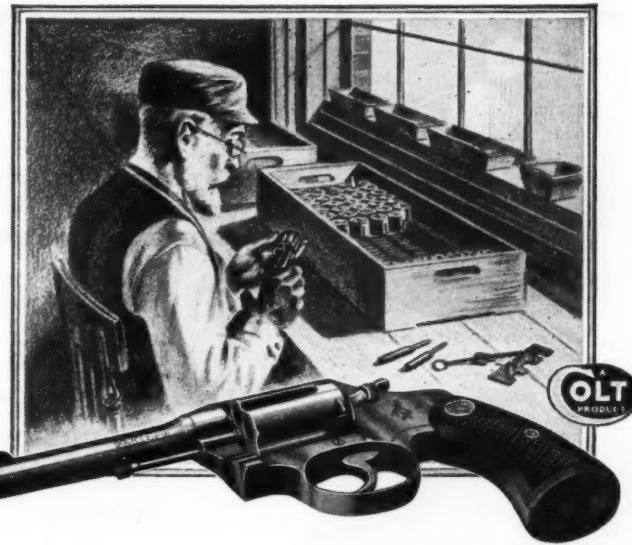


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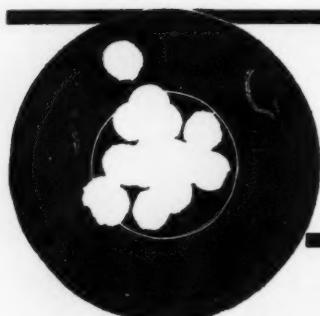
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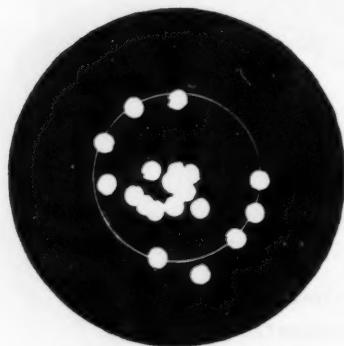
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WANTED—.30-06 rifle, sporter preferred, good condition. State lowest price. F. E. Couse, Park Ave., DuBois, Pa. 7-28

HAVE like new Browning 12 Auto. S. & W. Hand Ejector; Colt .32-20 Special. Smokeless .40-72 cartridges. **WANT**—Ithaca No. 2 new model double, Maxim silencer for .410 shotgun. A. R. Welker, 406 N. Harvey Ave., Oak Park, Ill. 7-28

SELL OR TRADE—9X B. & M. target scope. A front mount, B rear. Two reticles, post and X-hair, leather carrying case. Perfect condition; cost \$57.50; sell, \$48. Or trade for Fecker 6 x 1½-inch objective, like condition, cash for difference. Hugh Dolan, Pottsville, Pa. 7-28

WANTED—Belding & Mull W. front mount and Belding & Mull A front mount. Clarence Sherry, Viroqua, Wis. 7-28

SELL—"Firearms in American History," \$2. Pair barrels for Game-Getter, \$3. J. H. Smith, Ely, Mo. 7-28

SELL—Set trigger .22 Peterson. Ballards: One plain Ballard; one .38-caliber Ballard barrel No. 1 Lyman for Ballard, two Ballard stocks Bissell Model Colt .45-caliber 7½ inch barrel, brand new Model 90 Winchester. W. R. Allen, 1301 Pierce Bldg., St. Louis, Mo. 7-28

HAVE 30-inch full-choke barrel for Browning auto. 16, also barrel and cylinder for .45 S. & W. Army. **WANT**—.28-inch full-choke ribbed and 26-inch modified ribbed barrels for Browning 16 and 6½-inch barrel for .44 S. & W. Special. Ray Welker, 406 N. Harvey Ave., Oak Park, Ill. 7-28

FOR SALE—Ballard .22 single-trigger relined, weight 7 pounds, nickel-plated frame, butt plate and lever, perfect, \$20. Ballard double set nickel-plated frame and lever, .22 caliber, relined by Diller, one-half octagon barrel, barrel perfect, \$50. Ballard Schuetzen stock only, with heavy bronze butt plate, Circassian walnut, \$15. Ballard stock only, \$5. A. Wilcox, Sec., Modesto Rifle Club, Box 365, Modesto, Calif. 7-28

SELL OR TRADE—.405 Winchester, perfect, fired 20 times, \$35. .45 Colt automatic pistol, good, \$15. **WANT**—.22 or National Match Springfield, 7X Mirakel binoculars, or offers. Russell Wisler, Mill Valley, Calif. 7-28

ALBERT J. KRANTZ, Strasburg, Ohio, manufacturer of self-scoring rifle targets. Prices ranging from \$2.50 to \$7.50, according to size and finish. 7-28

SALE OR TRADE—Field and high-grade Ithaca 12- and 20-gauge guns. **WANT**—Scopes and Springfields any kind and condition. B. & M. sporter. Firearms. Fred Johnson, Seneca, Ill. 7-28

SELL—Fancy sporting stock for Model 52, for \$20, delivered. Good spotting scope sawbuck stand \$12. Perry Frazer, Ridgewood, N. J. 7-28

WANTED—Krag ammunition, factory loads and empties. State price. H. C. Stewart, 308 Ordern, East Liverpool, Ohio. 7-28

FOR SALE—Hammond heavy duty vibrator, from Betz Co., first-class mechanical condition. Cost \$115; sell \$60. R. Bonar, Box 777, Pine Bluff, Ark. 7-28

SELL OR TRADE—Rare underhammer muzzle-loading rifle; .22 rim-fire, Model 1873, Winchester repeater; .45-70 Springfield carbine; .22 rim-fire Stevens Model 55 with extra fancy stock; other firearms. Write for prices and description. Murray Leyde, Madison, Ohio. 7-28

HAVE like new .410 LeFever double, N. R. A. Savage .22; S. & W. .45 Army with extra cylinder and yoke for .45 Colt cartridges; S. & W. .38 Special 5-inch M. & P. **WANT**—LeFever .410 single Filmo projector. Ray Welker, 406 N. Harvey Ave., Oak Park, Ill. 7-28

TRADE—.22 Colt Auto. Extra magazine, bead and Patridge sights, perfect, for .22-32 S. & W. in like condition. Hugh Dolan, Pottsville, Pa. 7-28

HAVE Model 94 Marlin .25-20 and .45-90 shotgun. **WANT**—Barrel for S. & W. .44 Special; also 26 inch barrel for Browning 16 auto. Ray Welker, 406 N. Harvey Ave., Oak Park, Ill. 7-28

REAL BARGAINS—High-grade A Vion, 2½-inch object glass, magnifying power 45 times, 5 draw, black finish, Telescope. Length 41½ inches, closed 12½ inches. Fine for target or astronomical work. Cost \$50. Perfect condition; price, \$31.50. Remington express rifle, Model 30, .30-06. New, shot 30 times; cost, \$52.50; price, \$39.50. New L. O. Smith gun, grade Ideal E. Automatic ejector, 12 gauge, .30-inch barrels, weight 7.10 modified, full, shot 100 times; cost, \$73.50; price, \$49.50. Smith & Wesson Presentation Revolver in case, .32 hammerless, engraved nickel-finish, pearl handles; cost, \$60; perfect secondhand; price, \$19. Two flintlock dueling pistols, in case, with accessories, Wodgon, London, 1775, engraved steel, good secondhand, rare; worth \$75; price, \$38. Pepperbox revolver in case, bullet mould, 8-shot, .38 caliber. Ring under hammer, J. R. Cooper, London. Engraved, very fine, \$15. Money refunded on above. No trades. Mail stamp for list of antique arms. Lewis, 277 Main St., Beacon, N. Y. 7-28

FOR SALE—Brand-new Colt single-action Army. 32-30, never used, \$27. Brand-new Colt Police Positive target .22, never used, \$25. L. C. Davis, Maquon, Ill. 7-28

FOR SALE—Eight-gauge single hammerless, hand-made 34-inch barrel, 10 pounds, new, 60 empties, \$30. Nickel Bisley Colts, new barrels and cylinders, \$35. Winchester 94 octagon, takedown, new, Lyman 21, 80 cartridges, \$30. Antique list for stamp. M. McDougal, Burlington, Iowa. 7-28

SELL OR TRADE—.44 Smith & Wesson S. A. Russian Model, old model, .22 S. & W. revolvers, .32 center-fire S. & W. S. A. **WANT**—Colt .45 reloading tools. Chas. C. Milliron, Box 146, Dayton, Pa. 7-28

FOR SALE—.130-06 Springfield action, Pope barrel, sling, Zeiss Hunting Scope, special mounts, Circassian-walnut stock, Hawkins pad, new; cost \$225; sell for \$150. One 48 Lyman for Springfield, new, \$7. One 100 Lyman 103 bolt sight, new, price \$7. One Ideal resizing and lubricating machine, 4-disk, \$6. One set Ideal .30-06 reloading tools. Bond and Ideal mould, single and double chamber, \$8. **TRADE**—.38 Colt shoulder holster, tools, moulds, shells for Winchester 5A scope and mounts. W. N. Wade, 5 Days Park, Buffalo, N. Y. 7-28

TRADE—Case 303 Ross for case of Russian or Krag cartridges, or sell. Woestman, Box 2151, Pasadena, Calif. 7-28

SELL—Single-action Colt; .38 S. & W. Special; 5½-inch barrel, blued, genuine Colt Ivory stocks, perfect except blue slightly worn, \$35. Winchester 8 S. S. receiver with .25 Krag-Niedner fine nickel-steel barrel, also breech block, extractor, \$14. Stevens, Model 52, Schuetzen rifle, .22 and .32-40 30-inch No. 4 barrels, fine high-comb stock, set trigger, \$17. .32-40 extra heavy 30-inch barrel for Winchester 8 S. S. fancy fore end, palm rest, Winchester scope blocks, very fine, \$11. Wm. H. Jansen, R. I., Nokomis, Ill. 7-28

WANTED—.6.5 Mannlicher, .44 Russian, .44-40 cases, good condition. Also .6.5 metal-jacketed bullets. Kerna Hampton, 1210 Granada, San Marino, Calif. 7-28

HUNTING LANDS—Five tracts, 50 to 1,000 acres each, in some of Pennsylvania's best game districts. \$5 per acre up; terms if necessary. Camps must own lands to insure good hunting and get benefit of Pennsylvania's successful game and forest policy. Incorporate a club to use one of these. Write for descriptions. F. D. Beyer, Tyrone, Pa. 7-28

TRADE—AMERICAN RIFLEMAN since June, 1923, to date for issued sporter, .54 Winchester, latest .45 auto. John Anderson, Houston, Pa. 7-28

KRAG AND RUSSIAN rifles remodeled, cut off barrel, put on front sight, remodel stock, \$6.50. S. H. Fryer, 820 Hancock, Vandergrift, Pa. 7-28

FOR SALE—Match rifle, free pistol and powder scale. Write D. S. Perry, 514 Edgewood Place, Ithaca, N. Y. 7-28

SELL OR TRADE—Reloading tools; 7-mm. Mauser, perfect inside; .25-20 Savage, very fine; .25-20 Winchester, Model 53, new; .380 Savage automatic, good; Colt Woodsman automatic, new. **WANT**—.16-gauge gun, .45 automatic, .38-40 or .41 single-action Army, S. & W. Model 17, reloading tools, etc. R. McCaughan, Centralia, Kans. 7-28

FOR SALE—.256 Newton, cost \$90, \$45; 8-mm. Mauser, \$15. Winchester 25-20 S. S. Malcolm scope, \$25. .25-20 factory cartridges, 75 cents per hundred; .25-20 Ideal tool, \$3.50; Malcolm scope, Winchester mounts, \$12.50; .38 Army Special, holster, \$18. S. & W. 22-32, \$18; .45 N. S., \$15. Kodaks No. 1, special case, \$13.50; No. 1A, \$10; 3A, \$12.50. Crosley three-tube radio tubes, \$6. Powder scales, \$3.50. Frank Wilkinson, 82 Monticello, Buffalo, N. Y. 7-28

SALE—.30 Remington auto., sheared gold front, Lyman 2A rear, pistol grip and fore arm checked, canvas case, good condition, \$30. Don Nesbitt, Hodgdon, Me. 7-28

SALE—Colt .45 auto., 1911 Model; match barrel, fine; leather holster, leather belt, leather magazine pouch, extra magazine, \$25. Genuine Luger, 9-mm. 1916 model, extra good, extra 8-inch barrel complete with receiver and sights, new leather holster outfit, \$35. .22-caliber Marlin takedown repeater, fine, carrying case, Lyman peep front and micrometer rear sights, \$20. Springfield .30-06, 1913 issue, polished receiver, oiled stock, rod, sling, good, \$25. M. S. Triplett, Box 298, Muncie, Ind. 7-28

SELL—.1500 .303 Ross ammunition, \$5 per 100 f. o. b. Power Transportation Co., Water and G Sts., Washington, D. C. 7-28

FOR SALE—Springfield Sporter, fine, \$35. .22 Savage N. R. A. Marlin peepsights, new, \$18. Winchester 86 Model, .45-70, good, \$15. Winchester 94, .32-40, \$15. S. & W. .38 Special, new, \$20. Wall tent, 16 x 20, 10-ounce Army, new, \$25. Radio 5-tube (Murdock) complete, \$40. Violin (Stainer), \$25. Violin, \$5. Colt .45, Model 1917, \$18. Bond reloading tools, .30-06 and .30 Army, \$8. J. K. Sheerer, Mattawan, Pa. 7-28

SALE OR TRADE—.250 .30-06 empties and 500 Remington 180-grain soft-point .30-caliber bullets for Krag empties. Box 1023, Ellwood City, Pa. 7-28

SALE OR TRADE—Parker VH grade 12 x 26 6½-pound, good, \$25. Winchester, Model 12, 12 x 30, good, \$25. Winchester 86, fancy P. G. stock and fore arm checked, .45-70 24-inch half-octagon light weight, good, \$30. Remington 14A slide-action, .35-caliber Lyman peep. Marble 3-bead front, like new, \$35. Two Springfield rear sight adjusters, \$2.50 each. Two 10-volume sets complete mechanic's library, new; one set best offer; other set not less than \$25. **WANT**—Super Fox. J. H. Klenck, Warren, Pa. 7-28

SALE—.22-caliber Springfield sling, etc., absolutely perfect, \$37.50. C. R. Anderson, Box 348, Mason City, Iowa. 7-28

SALE—Remington, Model 30; caliber .30-06, Belding & Mull 3X scope and bolt sight, fired sixty times, factory condition, \$100. Certified check or money order. R. S. Rose, Granny White Pike, R. F. D. 9, Nashville, Tenn. 7-28

FOR SALE—One brand-new .32 Colt Police Positive, \$19.50. Fred Anderson, 239 Main St., Hackensack, N. J. 7-28

SALE—Winchester single-shot .32-40, .30 full octagon No. 3, Lyman peep rear, hooded front sights, muzzle brace, Winchester scope blocks, double set triggers, Schuetzen butt plate, in good condition, \$25. D. C. Shaffer, 116 Cedar St., Johnstown, Pa. 7-28

FOR SALE—Complete files *Arms and the Man* and *AMERICAN RIFLEMAN* 1922-23-24-25-26 and 27. In good used condition, \$2 per year, f. o. b. C. B. Currey, Box 1041, Seattle, Wash. 7-28

WANTED—Sporting Springfield, must be good condition and priced right. State model. P. O. Box 496, San Antonio, Tex. 7-28

WANTED—Russian Ammunition, caliber 7.62-mm. Advise make and date. Jack Emerson, 523 Norwood Ave., Grand Rapids, Mich. 7-28

SELL—Bausch & Lomb Stereo-Prism Marine Binocular, 10X, 45-mm., in case with straps; cost \$90; take \$60. Absolutely new condition. No trades. Robert W. Knight, 96 State St., Seneca Falls, N. Y. 7-28

TRADE—New Winchester 54, caliber .30-06, with Lyman 48 and 60 cartridges. **WANT**—Scope and mounts, prefer Fecker. A. J. Dornisch, St. Marys, Pa. 7-28

FOR SALE—7.65-mm. Luger auto. loading pistol, excellent condition, has been fired only a few hundred rounds, with leather holster, belt, extra magazine, and 50 rounds of ammunition, \$20. C. P. Williams, Jr., 284 State St., Albany, N. Y. 7-28

TRADE—.22 pistol, .32 revolver for .22 revolver or .32-20 single-action. Raymond Anderson, R. 1, Box 69-A, Princeton, Minn. 7-28

FOR SALE—“ALBERTSON” of Lewes, Del., offers a custom-built Springfield Sporter for \$60. Twenty-four-inch Precision barrel, Lyman 48 rear, ivory bead on hooded ramp front, full pistol grip, checked butt plate, stock to your measure. Also these bargains: Twenty-two sub. barrel for the .45 auto., \$8. Twenty-two barrel for same, \$15. Albertson-Colt auto. .45, \$49.50. 7-28

WANTED—Bond Reloading Tools, Model C for Krag .30, .40, .25, .40. U. S. Hubbell, Cottonwood Ranch, Ten Sheep, Wyo. 7-28

FOR SALE—.22 Hi-Power, takedown, factory front, Lyman tang rear sights, .22 long-rifle adapter, few cartridges, \$20. Colt Police Positive, .22 target revolver, 6-inch barrel, blued, \$20. Both crane condition inside and out. William B. Duff, La Grange, Ind. 7-28

WANTED—Copies of January and February, 1928, issues *THE AMERICAN RIFLEMAN*. Trooper S. E. Morris, Batavia, N. Y. 7-28

FOR SALE—Hoffman Mauser .250-3,000 Savage equipped with Zeiss-Zeiler scope sight, shot 20 time, guaranteed 1¼-inch group at 100 yards, with sight, \$60; without sight, \$40. .30 Remington Express, new, \$30. .22 Colt automatic heavy barrel, good condition, \$21.50. No trades. J. A. Wade, Box 214, Boise, Idaho. 7-28

MEN—Big pay, South American work. Companies pay fare, expenses. South American Service Bureau, 1460 Alma, Detroit, Mich. 7-28

SALE—Collection of 40 flintlock and percussion pistols and revolvers; also .45 obsolete cartridge pistols and revolvers. G. E. Garrett, Wash. Loan and Trust Bldg., Washington, D. C. 7-28

FOR SALE OR TRADE—Several high-grade Ithacas in 12- and 20-gauge. **WANT**—B. & M. Sporter. Also scopes and Springfield any kind or condition. Fred Johnson, Seneca, Ill. 7-28

WANTED—A number of N. M. Springfields, priced right and shipped subject to examination. Also Mirakel Binoculars, vest pocket size. Thomas J. Pearson, Roswell, N. Mex. 7-28

FOR SALE—Warner & Swasey U. S. Army Prismatic Telescopic Rifle sight with leather carrying case with shoulder straps, \$15. Noske Field Scope with mount, new, never used or mounted on rifle, used as sample only, \$37. Karl Kahles 4X Mignon Telescope Sight, with upper part Mannlicher-Schoenauer mounts, almost new, \$17. .30-06 Pre-war Waffenfabrik-Mauser, single-trigger, trap butt, \$40. TX Mirakel Prism Binocular with case straps, factory new, \$30. .38 D. A. Colt 4½-inch barrel, nickel, pearl grips, \$12. Another 6-inch blue, wooden grips, \$12. .380 Remington Auto., wooden grips, \$11. Pair U. S. Flintlock Pistols by N. Johnson, Middlebury, Conn., 1827, dates on each, both have same Government inspector's stamp, each \$27; pair, \$50. Colt Dragoon Percussion, cut for shoulder stock, \$50. .38-55 Pacific Set Trigger Ballard, fancy, \$30. 41 Assorted Rose Folding Wood Duck Decoys, new; cost \$51.25; some need repairs; all for \$15. .30-caliber Mauser Combination Pistol and Carbine, inside perfect, \$27.50. Factory-loaded Winchester 12-gauge shells, black powder, 00 Buck, \$5 per case of 500. All sure fire, in sealed boxes. Leather Cartridge Belts, any caliber, 75 cents postpaid. Leman, Lancaster, Pa., Kentucky Flintlock, excellent \$40. S. Bridge, 214 West 34 St., New York City. 7-28

SELL—.32-20 S. & W. Target Shoulder Holster, new, \$30. J. R. Whiteman, Buckeye Ave., Wellsville, Ohio. 7-28

SALE—Winchester .32 Special, octagon barrel, pistol grip, Ideal loading tool, mould, \$20. H. S. Martin, 415 Libson, San Francisco, Calif. 7-28

FOR SALE—Mannlicher-Schoenauer 6.5-mm., factory condition inside, nearly 100 cartridges, \$38. .32-20 Savage, Model 33C Sporter, brand new, with Lyman peepsight and 100 Hi-Speed cartridges \$18. 1 Davis Maxim, 20-inch, 20-gauge, brand new, \$17. A. B. Vinal, Vinalhaven, Me. 7-28

FOR SALE—Winchester carbine and tools, caliber .32 Special, fine \$18. Colt Police Positive, Special 62 barrel, .32-20, like new, \$18. 20-gauge with .32 S. & W. below the three-barrel gun, good, \$20. C. L. Seidel, East Grand Rapids, Mich. 7-28

FOR SALE—Winchester, Remington, Peabody, Evans, Sharps, Spencer, Maynard, Martini, Steyr, Westley Richards, Soper-Metford. G. S. Lewis, 52 Cornell St., Springfield, Mass. 7-28

WANTED—Luger pistol, and straight-pull Austrian Mannlicher, wood hand guard top. Dr. F. W. Loomis, Shannon City, Iowa. 7-28

WANTED—Perfect flat-top Bisley adjustable sights, complete frame, hammers, triggers, Howe-Whelen sight for Springfield, .44 special shells, bullets, spotting scope and rifle scope. No junk. **SELL OR TRADE**—Brand-new copy Dillin's “Kentucky Rifle.” L. Koitz, Malverne, N. Y. 7-28

FOR SALE—Springfield Free Rifle, 28-inch Remington barrel, set triggers, palm and finger rest, combination post and aperture front sight, also straight trigger and extra guard. Very accurate. Price, \$75. S. R. Hinds, c/o THE AMERICAN RIFLEMAN. 7-28

FOR SALE—Charles Daly three-barrel gun, \$45. Winchester 12-pump, \$35. Both in fine condition. Clawson, Box 555, Indiana, Pa. 7-28

WANTED—THE AMERICAN RIFLEMAN for December, 1927, and March, 1928. George J. Hanley, Goose Creek, Tex. 7-28

SELL OR TRADE—C melody saxophone, plated, with case, only slightly used, wonderful tone. **WANT**—.25-20 and Marlin's Game-Getter; must be perfect. J. R. VanLiew, Interlaken, N. Y. 7-28

TRADE—Fine trap or sporting stocks made to order; will take good guns in exchange. **WANT**—Winchester 52, Springfield, .22-32 S. & W. **SELL OR TRADE**—Goerz binoculars, black bear rug, fancy, .30-06 Mauser, Savage .22 H. P. F. Salisbury, 931 Linden, Waukegan, Ill. 7-28

FOR SALE—Remington 12-gauge auto. shotgun, full-choke solid-ribbed barrel, checked stock and fore end, new and perfect, \$49. Arthur E. Anderson, Fullerton, N. Dak. 7-28

FOR SALE—Bisley 7½-inch target barrel, adjustable front sight, checked trigger trigger stop, .44 Russian, perfect condition, \$45. Model '73 Winchester .32, short, \$25. Ballard sporting rifle by Brown Mfg. Co., nipple under hammer, fine condition, \$25. Ballard Pacific action and stock, \$15. Ideal lubricator, 319 die, \$6.50. Box 618, San Bruno, Calif. 7-28

FOR SALE—Colt .25 Automatic, \$10. Remington .25-20 repeater, \$16.50. Stevens scope, No. 438, and mounts, except blocks, \$15. Geo. M. Spahr, Frankfort, Ind. 7-28

FOR SALE—Winchester 54 '06, Jostam pad, Lyman 48. **WANT**—Star-gauged Springfield. Dr. Ederer, Morris, Minn. 7-28

FOR SALE—Winchester 52, like new, very accurate. Stevens 368 Scope, Lyman No. 17 front. A. G. Sidenblad, Morris, Minn. 7-28

FOR SALE—.30-30, Model 55, Winchester fancy checkered stock and fore arm, oil finish, never fired, \$35. Bisley, Model 38, Special Colt, 5½-inch barrel, blued, perfect with .38 W. C. F. extra barrel and cylinder, \$35. Remington Express .30-06, factory condition, oiled stock, leather strap, scope blocks, \$40. Brand-new improved Model 52 Winchester stock, \$36. S. & W. 22-caliber Olympic model target pistol head sights, perfect, \$25. No. 3 Ithaca 20-gauge single-trigger, perfect, \$70. New model 12-gauge Ithaca No. 1, \$30. 20-gauge latest model Winchester, \$30. 20-gauge Remington with pad, \$30. 177 Webley & Scott air pistol, \$10. 12-gauge Winchester trap grade, \$50. No. 4 Ithaca single trap, latest model, \$75. Leather Winchester scope case, new, \$4. E. H. Hansen, 12 St. Joe Manor, Elkhart, Ind. 7-28

FOR SALE—Priced auction sale catalogues of antique firearms collections \$1 to \$3. Sawyer's Vol. I, \$5; Vol. II, \$21; Vol. III, \$7.50; Catalogue U. S. C. Co. Collection, \$4.50; “Magazine Antique Firearms,” \$4; “Stock and Steel,” complete, \$7.50; Simeon North “First Official Pistol Maker,” \$8.50; 32 r. f. S. & W., \$11; 22 S. & W. tip up, \$10; .38 S. & W., \$18.81 Model, \$14; .38 S. & W. Special 5-inch blue, square grip, \$20; .38 S. & W. Special 5-inch nickel, round grip, \$18; .45 Colt Automatic, checked trigger and back, \$25; .44 S. & W. Russian Model, spur guard, like new, \$45; .44 Starr Percussion, \$7; .32 Savage Automatic, \$11; U. S. Peabody rifle, \$6; Starr Carbine, \$6.50; Smith Carbine, \$4.50; Hall Carbine, triangular bayonet, \$9; .50 Remington U. S. N. S. with bayonet, rare, \$9.75; Jenks Carbine tape lock, \$9.50; .38-72, \$19; Wurfflein double, 10-gauge Damascus percussion in case, \$55; Roper rifle and shotgun in case, rare, \$50; Charleville musket, \$16; .44 Colt lever-action rifle, poor, \$8.50; F. Wesson target rifle, Schuetzen, \$12; Sharp's Buffalo rifle, 16½-45-2, \$40; any many others. **WANTED**—Winchester .45-125 Express rifle, Smith & Wesson .46 rim-fire Army revolver, Bisley Colts, flat-top target models. J. C. Harvey, 880 Main St., Worcester, Mass. 7-28

WANT—New .38 Special Colt, S. A., 5½-inch barrel, genuine Colt pearl or ivory grips. E. Thompson, 23 Pinckney, Greenville, S. C. 7-28

\$24.50 COMPASS FOR \$3.00

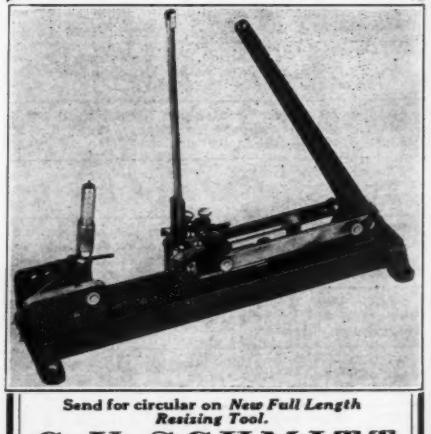
U. S. Engineer Department Marching Compass, complete with Focusing Eye-piece, Floating Dial, with Leather Belt Carrying Case. Cost Government \$24.50. Special price, subject to stock on hand, \$3.00, postpaid and insured. Beware of imitations. These Mark VII Model D Compasses are made by Sperry Gyroscope Co.

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"Mike's Pill Box"

WHEN a concrete machine gun implantation halted the progress of his platoon at Belleau Bois on October 27th, 1918, Michael J. Perkins, Private, first class, of the 101st Infantry, volunteered to "get" that particular pili box—and get it quick.

Alone, with only a hand grenade and his trench knife, "Fighting Mike" crawled out to the "box", miraculously reaching it in face of grueling machine gun fire. For a moment he waited. Then the door opened cautiously, and Mike let go his grenade, following it with his own fighting self.

Inside chaos reigned as Perkins slashed right and left with his knife. Soon came cries of "Kamerad" and twenty-five Germans with arms upraised, filed out and started for the American lines.

With his charges safely delivered, Perkins was ordered to a hospital to have his wounds dressed but the ambulance was hit by a shell and, alas, the intrepid hero was blown to pieces before he could receive recognition for his gallant deed—the Congressional Medal of Honor which was posthumously awarded him.

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